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EDINBURGH MEDICAL JOURNAL

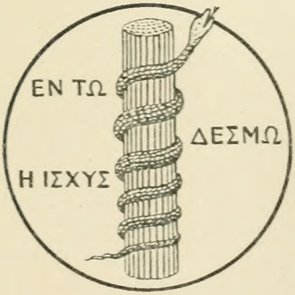
PRINTED BY
GREEN AND SON
EDINBURGH

EDINBURGH
MEDICAL JOURNAL

EDITED
BY
ALEXANDER MILES & J. S. FOWLER

NEW SERIES

VOL. XVI



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JANUARY 1916.

EDINBURGH MEDICAL JOURNAL.

EDITORIAL NOTES.

Annus 1915.

ALTHOUGH the year which has just passed has not been distinguished by any great advance in medicine—unless it be reckoned an achievement that, thanks to science, millions of men have lived in camps through the seasons without being decimated by infectious disease—research has not stood still. A survey of the periodical literature of the year reveals many contrasts with 1914. The patching and mending the physically less fit no doubt goes on, but there has been less writing about it—about the surgery of the over-civilised colon, for instance, or about the diagnosis of fortuitous incurable lesions of the nervous system, or the toxic effects of eating wrongly or too much. The most prominent place in medical literature has been occupied by work designed to prevent, or repair, the ravages of war.

Speaking only in the most general way, it may be said that the teaching of military surgery and medicine in previous wars has proved of comparatively small value, except as regards organisation, in the present conflict. Many of the lessons of the South African War, in particular, have had to be unlearned. There our army was small, the rifle was the principal weapon, transport was bad, typhoid was rife, and sepsis was trifling; here the armies are immense, the weapon is the high explosive, transport is unsurpassed, typhoid has been abolished, and sepsis stands out as the great danger. It very quickly became apparent, to the surprise, we imagine, of those whose experience depended on the results of civil surgery at home, that our present methods of dealing with sepsis in war are far from effectual.

In the work which has been published on the prevention of wound infection the three principal plans stand out: First, there was the early free use of strong antiseptics, and Sir W. Watson Cheyne's suggestion that as soon as possible after a wound was received there should be introduced into it an antiseptic paste which could exert a continuous disinfectant action on the tissues. Second, there was the highly ingenious experimental work of Sir Almroth Wright, according to which reliance was to be placed on the antibacterial power of the tissue fluids—the use of hypertonic saline solution to stimulate the lymph flow in the injured area, and the use of vaccines to enhance its bactericidal properties. Last, there is the revival of chlorine as a disinfectant, with which the names Lorrain Smith, Cohen, Carrel, and others are associated. It is, of course, premature to say that the problem of checking sepsis will be solved along any of these lines, but they certainly contain promise, and it now appears as though chlorine may prove of value, not only as a local antiseptic, but as an antibacterial remedy which can safely be introduced directly into the circulation with the prospect of good result in various forms of bacterial intoxication or infection, medical as well as surgical.

Of the special surgery of wounds in war, attention seems specially to have been focussed on the prevention and treatment of tetanus and gas gangrene, and the management of abdominal wounds. Tetanus, which was much feared as the result of experience of the earlier fighting, has to a very large extent been eliminated from the risks our wounded run, and we may hope that by improved antiseptic methods gas gangrene, too, will soon be held in check. With regard to wounds of the abdomen, it seems fairly certain that a high mortality can only be prevented by early operation. It is understood that in some parts of our lines arrangements now exist whereby such cases can be operated on by expert surgeons within a few miles of the front and a few hours of being wounded, and kept in these advanced hospitals until their wounds are healed. The results are said amply to warrant an extension of this system.

On the medical side of the war, the outstanding feature has been the wonderful absence of disease among the troops, and in particular of typhoid fever. The sanitary system, the work of the Army Service Corps, and scarcely less the attention which is paid to the effect of comfort and recreation on health and *morale* are wholly admirable. The practical abolition of typhoid, the scourge of field armies, has amply vindicated antityphoid vaccination. On the purely scientific side, the advances which have been made on the diagnosis of typhoid and paratyphoid fevers by new methods of isolating the organisms, and by the application of quantitative standards in testing the agglutinating reactions, are sure to prove of permanent value. Both the western and eastern campaigns have brought forth a number of new, or at least novel, types of disease. The peculiar form of frost-bite—"trench feet"—has been extensively studied, with the result that the cases now seen are less numerous and severe than last winter. "Trench fever" remains a puzzle; neither its nature nor mode of infection has been cleared up. Subacute nephritis has been common in the hospitals in France; so far as the published reports go, it does not seem, apart from its frequent incidence, to differ materially from ordinary acute nephritis of a mild type.

The neuroses of war will doubtless form an interesting chapter when the time comes to write it. So far as can be judged at present, mental disturbance has not occurred to any great extent, whereas there have been many cases of functional nervous disease, especially as the result of bursting high explosive shells. The relatively small part that these maladies have played is the best testimony to the *morale* of the forces; it has been conduced to by the rest camps, amusements, and games which have been provided, and may also be reckoned as a countervailing advantage of the lack of imagination which is one of our national defects.

So far as domestic medical affairs are concerned, one of the principal movements has been in the direction of attempting to compensate for the destruction of our manhood by greater efforts to save the lives of infants. The conservation of infant life is a matter which is exciting renewed interest and attention throughout the country, and whatever future thrift the war may impose on the State, expenditure which will diminish the infantile death-rate cannot but prove a true economy.

The organisation of a system of arranging work for those crippled by the war is now in progress, and will require to be taken up in a serious way. The best and kindest—the only—return the State can make to a citizen who is maimed in her defence is to see by all means that if he cannot return to his old occupation he is fitted for a new one. To assist the war cripple to utilise his remaining powers to the full, and to prevent him losing his self-respect through failure to get work, is a national as well as a personal duty, and one which will remain in the years that follow the war.

A great deal has been said about the scarcity of doctors, and with the call of the services—what it is—a shortage is obviously inevitable. The most uncertain factor in the future, however, is the extent to which the studies of junior medical students will be interrupted by enlistment, and in how far the supply of graduates three or four years hence will be thereby reduced. While there must of necessity be a great scarcity for the time, it is possible to exaggerate the seriousness of the situation. The war will be followed by many social changes, and it can scarcely be doubted that the health of the community will in the future be the subject of much more care and supervision than in the past. Ultimately, improved public health means less doctoring, and it would be neither for the good of the public nor the medical profession that there should be too great a rush of medical students and a return to the overcrowding of the medical profession such as occurred in the late eighties of last century.

Two social changes—upheavals is hardly too strong a word—which have a bearing on the public health remain to be mentioned—the great experiment of enforced temperance and the spread of women's work. It is difficult to imagine that the first of these will ever be wholly reversed. A year or two ago it was pointed out that signs were not wanting that after a long period of decline the consumption of alcohol was beginning to rise. The war has stopped that; and the benefit of restriction has been so obvious that the country will never revert to its old licence in this particular.

Women, as a whole, have certainly benefited by the work they have voluntarily undertaken and done so well. It is unquestionable that "invalidism" has diminished among the leisured class, through the direction of energies unused by many, misused by a few, into channels which serve the State. The country is now a large employer of female labour, and one of the practical consequences ought to be, in the future, an improved status and better organisation of women workers.

Doctors and the Derby Scheme.

We are informed that the Scottish Medical Service Emergency Committee, which for the last six months has been actively engaged in recruiting medical officers for the Army, has now been appointed the "Tribunal" for Scotland to deal with questions affecting the liability of medical men to undertake military service. The following is an excerpt from the letter of appointment addressed to the convener of the Committee at the Royal College of Physicians, Edinburgh, by the Assistant Director-General of the Army Medical Service:—

"War Office, Whitehall, S.W.,
12*th November* 1915.

"I have been directed by Sir A. Keogh to acknowledge your letter of the 9th November, and in reply am to say that your Committee is to be regarded as a Tribunal for medical purposes, and that you are empowered to issue letters of excuse to medical men whom you think it would be undesirable to call upon to undertake military service."

The Committee will shortly make a public announcement of the manner in which they propose to discharge this important national duty.

The Committee is constituted as follows:—Dr. A. H. Freeland Barbour, President of the Royal College of Physicians; Mr. J. W. B. Hodsdon, President of the Royal College of Surgeons; Dr. Ebenezer Duncan, President of the Royal Faculty of Physicians and Surgeons of Glasgow; Professor Kynoch, Dean of the Faculty of Medicine, University of St. Andrews; Professor Bryce, Dean of the Faculty of Medicine, University of Glasgow; Professor Shennan, Dean of the

Faculty of Medicine, University of Aberdeen; Professor Littlejohn, Dean of the Faculty of Medicine, Edinburgh University; Dr. John C. M'Vail, Deputy Chairman, Scottish National Insurance Commission; Dr. J. R. Hamilton, Hawick, Chairman, Scottish Committee, British Medical Association; Dr. John Adams, Glasgow, Vice-Chairman, Scottish Committee, British Medical Association; Dr. John Playfair, President of the Edinburgh Medical Guild; Dr. J. R. Currie, Edinburgh, Senior Medical Officer, Scottish National Insurance Commission; Dr. John Gordon, Aberdeen, President, Aberdeen Branch, British Medical Association; Dr. John Stevens, Secretary, Edinburgh Branch, British Medical Association; Dr. G. C. Anderson, Methil, Secretary, Fife Branch, British Medical Association, and of the Fife County Local Medical and Panel Committees; Dr. Norman Walker, Edinburgh, Direct Representative for Scotland on the General Medical Council (Convener). The Secretary to the Committee is Mr. T. H. Graham, Royal College of Physicians, 9 Queen Street, Edinburgh.

Indian Medical Service Appointments (Communiqué).

IT was recently announced in the Press that after the open competitive examination held last July for admission to the Indian Medical Service no similar examination would be held during the continuance of the war, but that such appointments as might be required to meet the absolutely indispensable needs of the Service would be made by nomination by the Secretary of State. To assist him in making these appointments, which, as already announced, will be limited in number to the absolutely indispensable needs of the Service, Mr. Chamberlain has appointed a Selection Committee, who will summon and interview such applicants as may appear to be *primâ fácie* suitable, and make recommendations for appointment.

Applications for appointment should be addressed to the Secretary of the Military Department, India Office, Whitehall, S.W., and should contain concise particulars of the applicant's medical degrees and career. Applicants must be over 21 and under 32 years of age at the time of application. Particulars regarding pay, promotion, etc., in the Service can be obtained from the Secretary, Military Department.

A DINNER was held on the 30th November of as many of the Edinburgh University graduates as could be traced who are serving with the R.A.M.C. in the north of France. A large number turned up and a most successful dinner took place under the presidency of Sir James

Clark, Bart. The toast of "our old School" was proposed by Colonel Copeland, and was responded to by Major Melville Dunlop, who gave a number of interesting reminiscences of the professors and teachers of his student days.

CASUALTIES.

DIED on service, Lieutenant-Colonel ALEXANDER AITKEN ROSS, R.A.M.C. (T.F.), in an officers' hospital in London on 24th November, aged 44.

> Lieutenant-Colonel Ross was educated at Edinburgh University, where he took the degrees of M.B. and C.M. in 1893. He settled in practice in Edinburgh, and, on the institution of the Territorial Force, joined its medical department. On 15th August 1908 he attained to the command of the 3rd Lowland Field Ambulance, and with it he went last July to the Dardanelles, and had only recently been invalided home.

KILLED in Flanders, Lieutenant JAMES RESTON GARDINER GARBUTT, R.A.M.C., reported in the casualty list published on 9th December.

> Lieutenant Garbutt was educated at Aberdeen University, where he graduated M.B. and Ch.B. in 1911; he afterwards filled the post of house-surgeon at the General Infirmary, Macclesfield.

The Aberdeen University "Roll of Fallen" up to December 1915 includes the names of seven medical students. Notices of the two following have not previously appeared in our columns.

Corporal KEITH MACKAY, 4th Batt. Gordon Highlanders, died in a casualty clearing hospital in France on 28th April, aged 20. He was a first year medical student at Aberdeen.

Private GORDON DEAN MUNRO, 4th Batt. Gordon Highlanders, died of wounds received in action near Ypres on 25th September, aged 20. He also was a first year medical student at Aberdeen.

HONOURS.

THE following honours have been conferred on members of the medical services:—

The Victoria Cross.—Temporary Lieutenant GEORGE ALLAN MALING, M.B., R.A.M.C., "for most conspicuous bravery and devotion to duty during the heavy fighting near Fauquissart on 25th September 1915. Lieutenant Maling worked incessantly with untiring energy from 6.15

A.M. on the 25th till 8 A.M. on the 26th, collecting and treating in the open under heavy shell fire more than 300 men. At about 11 A.M. on the 25th he was flung down and temporarily stunned by the bursting of a large high explosive shell, which wounded his only assistant and killed several of his patients. A second shell soon after covered him and his instruments with débris, but his high courage and zeal never failed him, and he continued his gallant work single-handed."

The Military Cross.—Captain MAURICE HOLDSWORTH BARTON, R.A.M.C. (T.F.), attached 5th Leicester Regiment, for conspicuous gallantry and devotion to duty at Hohenzollern redoubt on 13th October 1915, in tending and bringing in wounded under fire.

Captain SAMUEL RUSSELL FOSTER, M.B., 2nd North Midland Field Ambulance, R.A.M.C. (T.F.), for conspicuous gallantry and devotion to duty at Hohenzollern redoubt on 16th October 1915.

UNIVERSITY OF EDINBURGH.

AT the Graduation Ceremonial held on Friday, 17th December, the following were awarded the degree of *Doctor of Medicine*:—Edwin Charles Girling (Lieut., R.A.M.C.), England, M.B., Ch.B., 1906, "Human Trypanosomiasis (Sleeping Sickness) in the Bolobo District of Belgian Congo" (*in absentiâ*); *George Duncan Logan, Scotland, M.B., C.M., 1882, "A Study of Rheumatism in Childhood, Based on a Series of Cases Observed during Thirty Years of General Practice"; **Stewart M'Naughton, England, M.B., Ch.B., 1905, "Modern Methods in the Diagnosis of Pulmonary Tubercle"; Adelaide Anna Renshaw (*née* Dreaper), Ireland, M.B., Ch.B., 1909, "A Contribution to the Study of the Blood in Cancer, with Special Reference to the Wassermann Reaction"; **William Russell (Lieut., R.A.M.C.), Scotland, M.B., Ch.B., 1910, "Dementia Præcox in the Native Races of South Africa" (*in absentiâ*); Charles Parker Stewart, Scotland, M.B., C.M., 1893, "Infantile Mortality from a Public Health Point of View"; Vattaparampil Sankara Valiathan, India, M.B., Ch.B., 1905, "Present Position of Tuberculin Therapy" (*in absentiâ*); Griffith Jones Williams, Wales, M.B., C.M., 1892, "Chronic Constipation, its Causes and Treatment."

** Highly commended for Thesis. * Commended for Thesis.

The degrees of *Bachelor of Medicine and Bachelor of Surgery* were awarded to William Brownlie (M.A., B.Sc., New Zeal.), New Zealand (1st class Hons.); Thomas Frederick Corkill, New Zealand (Lieut., R.A.M.C. (S.R.)); Henry Fotheringham Ferguson, Scotland; George William Marshall Findlay, England (Surg. Prob., R.N.V.R.) (1st class Hons.); Pratul Kumar Ghosh, India; Robert Lancelot Impey, South Africa (Lieut., R.A.M.C. (S.R.)); Henry Bruce Kirk, Scotland; Andrew John M'Ivor, Ireland; Premrai Trambakrai Majmundar, India; Kumud Sankar Ray (M.A., B.Sc.), India;

Arthur John Desmond Rowan, Australia ; Clement Ings Steckley, England ; Guy Melchoir Torrance, Scotland ; Reginald Arthur Warters (B.A., Cantab.), England ; James Augustus Williams, West Africa ; Wyndham Williams Wales (Lieut., R.A.M.C. (S.R.)) ; Tin Po Woo (Ng), China ; Margaret Kirk Jolly Wright, Scotland ; Peter Hutchison Young, Scotland.

The degree of *Bachelor of Science* in the Department of *Public Health* was awarded to James Abbey Henderson, M.B., Ch.B. (Capt., R.A.M.C. (T.))

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.

At a meeting of the College held on 15th December the following gentlemen, having passed the requisite examinations between 4th and 6th October 1915, were admitted Fellows :—James Buchanan, M.B., Ch.B.(Glasg.), Glasgow ; Shyama Pado Chattopadhya, L.R.C.S.E., etc., Bengal ; Jacobus Stephanus du Toit, M.D.(Edin.), London ; Arthur Owen Evans, M.B., Ch.B. (New Zeal.), England ; James Norman Jackson Hartley, M.B., Ch.B.(Edin.), Keighley ; Alfred William Macbeth, M.D., C.M., Queen's University, Kingston, Ontario, Canada, L.C.P.& S., Saskatchewan.

At the recent Dental Examinations the following candidates passed the *First Dental Examination* :—R. G. du Toit, J. J. Stander, William Kerr, and J. R. Sherrard. The following candidates passed the *Final Examination*, and were granted the diploma L.D.S., R.C.S.(Edin.) :—Mrs. Anna Grace Laubscher, Lyle Martin Stark, John Thomson Kay, Samuel Hendrik Walters, William Morse Griswold, Louis Bernberg, Alexander Dickson M'Haffie, James Wilfred Thomson, and James Stewart Macpherson.

ON INVERSION OF THE ILIUM AND SACRUM AND ISCHIUM AND PUBES (ILIO-SACRAL AND ISCHIO-PUBIC BONY SEGMENTS) AS CAUSES OF DEFORMITIES OF THE FEMALE PELVIS.

By D. BERRY HART, M.D., F.R.C.P.E.,
Lecturer on Midwifery and Diseases of Women, Surgeons' Hall, Edinburgh.

IN considering this subject it will be advisable to take it up in the first place in the way it presented itself to me.

On 9th February 1903 I delivered a woman at the Edinburgh Royal Maternity and Simpson Memorial Hospital by means of pubiotomy. The patient died on the third day from delayed chloroform poisoning, and not from sepsis. The post-mortem was performed by Professor Stuart McDonald, now of Durham University, and I obtained the pelvis whose measurements will be given along with those of others later.

I was unable to classify this pelvis. It was not rickety nor a pure justo-minor as understood at present, nor funnel-shaped, and I therefore considered it tentatively as non-rickety, generally narrow and flat, although I could not defend this diagnosis fully.

In investigating atypical female *sex-ensemble* (female pseudhermaphrodism) my attention was drawn to the fact that one case, No. I., of Fibiger, had a male pelvis, but no measurements were given. It did not strike me then that such inversion had any bearing on this specimen.

Case II., N. N., by the same author, had all the pelvic measurements male, except the obliques at the brim, and was thus practically a male pelvis, although N. N. was a case of atypical female *sex-ensemble* (female pseudhermaphrodism). In such cases, then, we may have inversion of the bony pelvis, of the ilium and sacrum, and probably of the ischium and pubes. This suggested to me that inversion of the bony pelvis might be present, not associated with psychosexual pseudhermaphrodism, and I thus began to look into this aspect. The question was whether we might not get a female pelvis with inversion of part of the bony pelvic factor of the *sex-ensemble*, with or without any other considerable features of the *sex-ensemble* also being inverted.

In searching for evidence I came across Dr. Derry's papers entitled "The Influence of Sex on the Position and Composition of the Human Sacrum" and his "Note on the Innominate Bone as a Factor in Determination of Sex: with Special Reference to the Sulcus Preauricularis"; and also renewed my acquaintance with Arthur Thomson's contribution, "Sexual Differences of the Fœtal Pelvis," and Fehling's "Die Form des Beckens beim Fötus und Neugeborenen und ihre Beziehung zu der Erwachsenen." The first two especially cleared up the difficulties I had, and I now hope *to show that this pubiotomy pelvis and several others are really cases where a (male) ilium and sacrum have been inverted into a female bony pelvis, and thus each has a female pelvic ischio-pubic bony segment and a male ilio-sacral; or that the ischium and pubes* (male) may be present in a female pelvis so that we have ilio-sacral and ischio-pubic inversions of the bony pelvis giving rise to serious deformity.

The question of what constitutes the differences between the normal male and female pelvis must now be considered.

The obstetrician has usually described the *normal female pelvis* as differing from the normal male pelvis in its greater size and the lighter build of its components; greater width of brim—transverse and pubic arch, and larger interischial diameter. No convergence of side walls of cavity. The brim is reniform.

The *normal male pelvis* has heavier, rougher, and more massive bones, a narrower sacrum transversely, with a less marked vertical curve, some convergence of the side pelvic walls, and a narrower pubic arch. On this I may quote what I said in my *Guide to Midwifery* (p. 27):—

"The differences between the male and female pelvis are pronounced. The male pelvis has heavier bones with well-marked muscular attachments; while the female pelvis is roomier and larger, with the iliac bones flatter. Thus the true pelvis in the female has a much greater capacity than the male owing to its wider transverses. The brim of the female pelvis is reniform in its shape, as compared with the cordate form of the male. In the male the pubic arch is narrow (70° to 75°), while that of the female is markedly wide (90° to 100°). The obturator foramen is ovoid in the male, triangular in the female, and in the former the foramina look more outwards; the male sacrum is longer and narrower" (pp. 27 and 28).

The obstetrician, therefore, considered the larger female pelvic capacity as compared with the male to be due to an increased sacral width as well as an increase in the usual measurements or diameters of the pelvis agreed on by obstetricians.

General anatomists have, however, drawn attention to some

PLATE I.

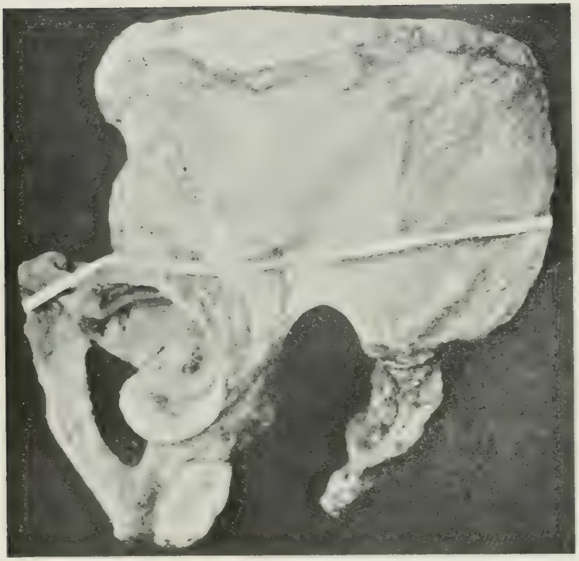

Fig. 1. Male Pelvis, Lateral Aspect. Note male sacro-sciatic notch and posterior steep aspect of ilium.

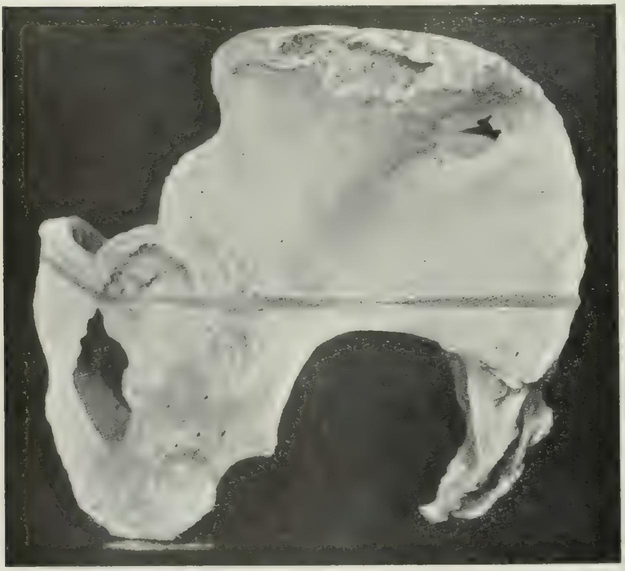

Fig. 2.—Female Pelvis, Lateral Aspect. Note large sacro-sciatic notch, and less steep posterior aspect of ilium (Derry).

special differences between the male and female ilium, since it is of importance, as Elliot Smith and Wood Jones have shown in archæological work, to determine the sex from an isolated ilium.

The following points have come up:—In the normal female ilium the great sacro-sciatic notch (incisura ischiadica major) is much larger than in the male ilium—that is, is almost rectangular, and has a longer periphery, while the male sacro-sciatic notch is smaller, and its boundaries meet above at an acute angle (Plate I., Figs. 1 and 2). The posterior boundary of the female notch is sacral, while in the male the posterior limb of the notch forms the upper part of the posterior border of the notch, only the lower part being sacral. Derry has also shown that the auricular part of the sacrum in

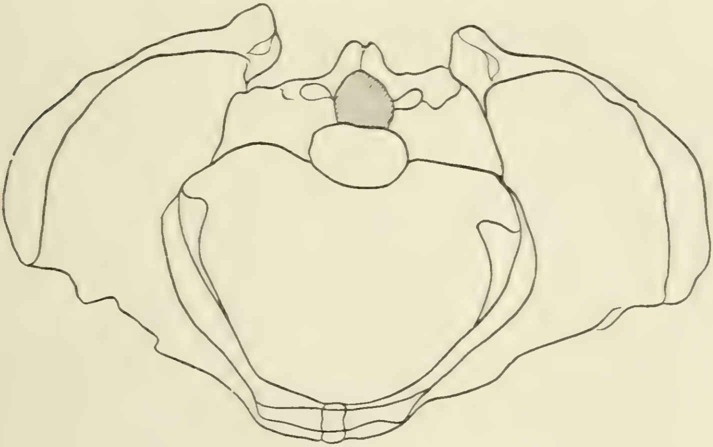

FIG. 1.—Brim of Pubiotomy Pelvis with Iliac Inversion.

the male runs into the third sacral vertebra in whole or in part. The female ilium is thus larger than the male ilium, and its posterior border is less steep and more rounded than in the male. In the antenatal pelvis and in the adult the curve of the iliac crest "reaches a higher level and is more pronounced than in the female" (Arthur Thomson). No text-book in obstetrics notices these facts about the notch, not even von Winckel's *Handbuch*. These facts about the ilium and great sacro-sciatic notch are of great importance. The greater size of the female pelvis is not only a question of the wider pubic arch and of sacrum breadth, but is also due in great part to the larger ilium, with which is associated the larger sacro-sciatic notch. One could suppose that if the ilium were ductile the female ilium had resulted from a drawing up and back of the male ilium, and also by the increase in size in it and the notch. Another difference is in what is known as the sulcus preauricularis. This is a groove in the ilium "immediately in front of the lower part of the auricular articular surface," and was so termed by Zaaijer. This is considered to be due to the attachment to the ilium of the anterior sacro-iliac ligaments. It is more frequently present in the female than in the male pelvis. Löhr found it in 41 female pelves out of 59, but only in 9 out of 34 in the male.

A secondary result of the differences of the male and female pelvis is due to the contrast in the sacro-sciatic notches. As the male sacro-sciatic notch curves down on its sacral aspect instead of going out almost at a right angle, the sacral auricular surface in the male is made up usually of two and a half to three sacral vertebræ. In the female normal pelvis, however, the vertebræ making up the sacral auricular surface are usually only two, unless there are six vertebral bodies in the sacrum, or the pelvis is kyphotic, and then the auricular surface spreads on to the third sacral vertebra more or less completely.

While this fact of the female sacral auricular surface being made up of fewer vertebræ than in the male holds good in the normal pelvis, and aids in determining the sex, the question will arise afterwards if the larger involvement of the vertebræ in sacra with six pieces or in kyphotic pelvis makes this criterion less absolute.

One point may be added here: the greater length of the mesial aspect of the male pubes as compared with the female. With these facts in mind I verified them on the normal male and female pelves in my museum, and then went on to examine a series of deformed pelves in my possession. The results were interesting.

In the flat, flat-rickety, scolio-rhachitic flat, and kyphotic and split pelves the sacro-sciatic notch was female, and thus the pressure factor in these deformities had no effect on the nature of the notch. A marked scolio-rhachitic flat had an unaltered female notch. In a Naegele specimen the notch was evidently female on the sound side, but smaller and yet female on the affected side. In a rare Robert's pelvis the notch on both sides was male and small, but sometimes it is female or male in split pelvis. (See Breus and Kolisko, I., Figs. 14, 21). In the former the ilia are diminutive, the sacro-iliac joints ankylosed, and the pelvic diameters markedly narrowed.

The most interesting find was, however, in the puzzling pubiotomy pelvis. Here both great sacro-sciatic notches were male; the *ilium and left half of the sacrum were also male. The rest of the pelvis was female,* viz. *the pubes, pubic arch, and the ischial transverse.* (See Figs. 1, 2, 3.)

I also found in my own museum another pelvis which I had classified as flat-rickety, generally narrowed. Both notches, however, were male, the ilia male, and the sacrum the same. The pubic arch was very wide and the ischial tuberosities far apart. I have no history of this pelvis, and no means of tracing it. In fact I do not know how it came into my possession, except that it may have been one of Matthews Duncan's preparations, obtained through the late Dr. J. B. Buist when the former left Edinburgh.

A pelvis which I had always considered as justo-minor (generally contracted) proved to have a male notch, and this is probably ilio-sacral inversion.

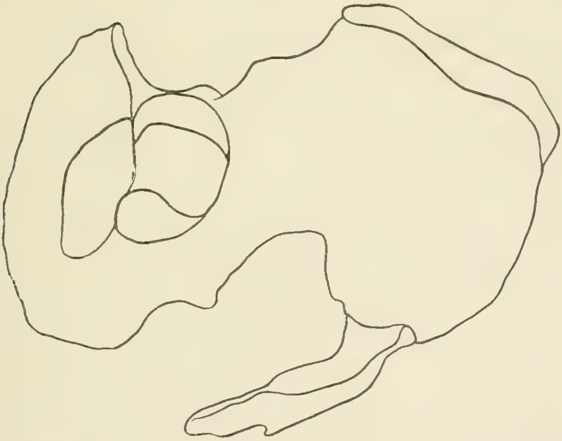

FIG. 2.—Lateral Aspect of Pubiotomy Pelvis with Iliac Inversion, to show Male Notch.

I next found an inverted pelvis in the museum of the Edinburgh Royal College of Surgeons, and Professor Briggs, who has one of the finest private collections in this country, to whom I wrote on the subject, sent me on a very fine specimen.

Dr. R. W. Johnstone, who kindly examined at my request the Edinburgh University specimens, discovered in the obstetrical museum one deformed female pelvis due to iliac inversion, and an interesting one where the ischium and pubes were male and the ilia female. The pubic arch was pronouncedly male in this rare case. His description of these is given later.

These pelves, seven in all, are instances of bony pelvic inversion, *e.g.* of ilium and sacrum, or ischium and pubes, into a female pelvis, thus causing serious deformity.

There may also be inverted male pelves, *e.g.* male pelves with an inverted (female) segment, ilio-sacral, or ischio-pubic, or portions of these. Probably they may be found in the atypical male *sex-ensemble* cases (male pseudhermaphrodism), or in pelves without a psychosexual *sex-ensemble* anomaly.

In Tuffier and Lapointes' case of atypical male *sex-ensemble* (male pseudhermaphrodism), the hips, and presumably the bony pelvis, were clinically female.

SOME PRELIMINARY POINTS AS TO THE VIEWS OF THE ORIGIN OF THE SHAPE AND SIZE OF THE NORMAL FEMALE PELVIS.

Matthews Duncan, Veit, and Schroeder studied the question of the upright pressure cause of the shape of the normal female bony pelvis (1868), mainly in relation to the brim, but, curiously enough, left out of account the same question in the male pelvis.

Schroeder believed the fœtal female brim to be a long oval or circular, and that the broader transverse of the brim in the adult female was due to the body weight acting down, and the leg resistance in, when the child began to walk. F. H. Champneys pointed out more correctly that the leg resistance did not act in the line of the neck of the femur, but in that of a line joining the foot and acetabulum. Schroeder's explanation was thus a purely mechanical one. If, however, this is the case, the male pelvic brim should be the same as the female one, as both are under the same mechanical conditions; indeed, the male pelvis should be an exaggerated female one, owing to the greater activity of the boy.

Quite a new light, however, was thrown on the question by Fehling of Strassburg (1870) and Arthur Thomson of Oxford. These observers demonstrated that the fœtal pelvis after the third month could be diagnosed as male or female, both by the brim transverse and by the sacro-sciatic notch: the latter fact being demonstrated in Thomson's specimens.

Thus the ultimate shape of the bony pelvis is due mainly to a type of growth before birth, and not wholly to post-natal mechanical influences.

It must be noted, however, that the lumbar curve, the greater curve of the sacrum, and the brim inclination to the horizon, are due to post-natal influences, and this must not be forgotten. The shape of the normal female pelvis and of certain deformed ones is congenital, and of the latter the chief are inverted pelves, justo-minor, Naegele, Roberts, achondroplasic, the so-called infantile, the funnel-shaped pelvis (irregular assimilation pelvis), the split pelvis. The flat, flat-rickety, scolio-rhachitic flat, and some very rare forms are post-natal in their origin. The congenital cases are, of course, subject to post-natal modifications, as in the case of the normal pelvis given above.

The inverted pelvis has thus a prenatal causation. The slight lateral deviation in the pubiotomy specimen has had no influence in its formation, and its diagnosis is based on (1) the smaller ilium, smaller sacrum, and male sacro-sciatic notch; (2) the symmetry of the pelvis; (3) the narrowing of the transverse of the brim. Rickets may be present, and thus we may have an excessively narrowed pelvis, as in one of my specimens.

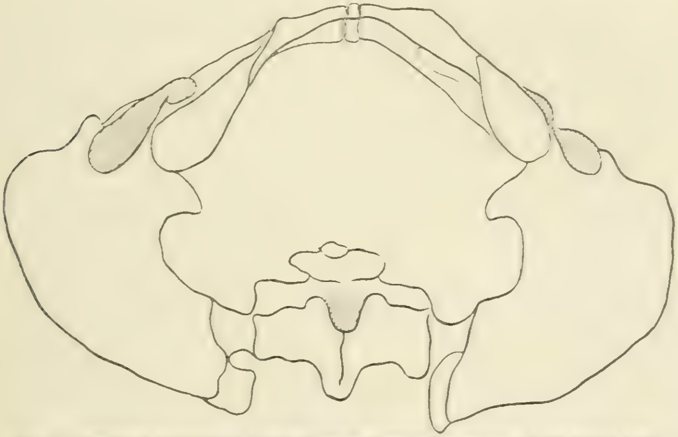

Fig. 3.—Outlet of Pubiotomy Pelvis showing Female Characters—Wide Pubic Arch and Normal Female Transverse.

Descriptive Anatomy of the Inverted Pelvis in the Female Ilio-sacral Inversion and Ischio-pubic Inversion.

Seven specimens are available for examination, viz., my own pubiotomy pelvis: another with rickety deformity superadded: a third thought to be justo-minor: a fourth very fine specimen from the museum of Professor Briggs of Liverpool University: a fifth from the Museum of the Royal College of Surgeons, Edinburgh; and two from the Edinburgh University Obstetrical Museum. Of these I describe five.

(1) *The Author's Pubiotomy Pelvis.*

The following measurements were made by my resident in the Royal Edinburgh Infirmary, Dr. Hamilton, and are as follows:—

Diameters taken.	When sawn surfaces opposed.	When sawn surfaces separated. ·465 in.	Difference.	When parts of bone separated. 1·08 in.	Difference.
Interspinous . . .	9·73	9·87	·14	10·03	·30
Intercristal . . .	10·53	10·62	·11	10·79	·26
Brim, conjugate . .	3·145	3·21	·65	3·491	·346
„ R. oblique . .	4·64	4·94	·30	5·24	·6
„ L. „ . . .	4·935	5·13	·195	5·22	·285
„ transverse . .	5·43	5·755	·325	5·88	·45
Outlet, conjugate . .	4·0	4·08	·08	4·225	·225
„ R. oblique . .	4·21	4·45	·24	4·965	·755
„ L. „ . . .	3·87	4·22	·65	4·555	·685
„ transverse . .	4·62	4·89	·27	5·03	·41
Baudelocque's diameter .	6·43	6·5	·07	6·5	·07
Between post.-inf. spines	3·325	3·18	– ·145	3·1	– ·225
Between post.-sup. spines	4·45	4·38	– ·07	4·12	– ·33
Diagonal conjugate .	4·15	4·20	·05	4·20	·05
Interacetabular . .	4·87	5·13	·26	5·46	·39

The measurements were made (1) with the surfaces of the sawn pubes apart, and (2) when in contact.

The increase at the brim by pubiotomy has been discussed in a previous paper. It amounted to nearly three-quarters of an inch.

It will be seen from these measurements that a full-time labour was impossible but that pubiotomy was indicated and was successful so far as the child was concerned.

In order to display the contours of the brim, outlet, and lateral aspects I had the advantage of Professor Arthur Robinson's advice to have them traced in outline by means of the dioptograph, and have to thank him for the personal trouble he took in making such satisfactory outlines as are shown in the figures.

Each pelvis had orthogonal tracings of the brim, outlet, and lateral aspects made, but in the pelvis with ischio-pubic inversion a frontal tracing of the pubic region was made instead of an orthogonal of the outlet.

On viewing the brim (Fig. 1) it can be noted to be symmetrical but the linea terminalis is somewhat less curved anteriorly than in a justo-minor (Fig. 1). The sacrum is male as to the left ala sacra, and there is a slight lateral deviation to the left in the lumbar vertebræ. This has no effect on the notch, and indeed the pelves I have examined, where there is marked scoliosis in the lumbar region, have female notches. The ilia are small, the sacro-sciatic notch male, and thus the whole ilium is male (Fig. 2).

The ischio-pubic segment is female, as the pubic arch is large, and the transverse at the outlet, 4·62 ins., quite a normal measurement. The outlet conjugate, on the other hand, is 4 ins., an inch less than normal (Fig. 3).

In the second pelvis in my possession the deformity is marked, as will be seen from the measurements given below. The ilia are exceedingly small and the notch markedly male. The sacrum is male.

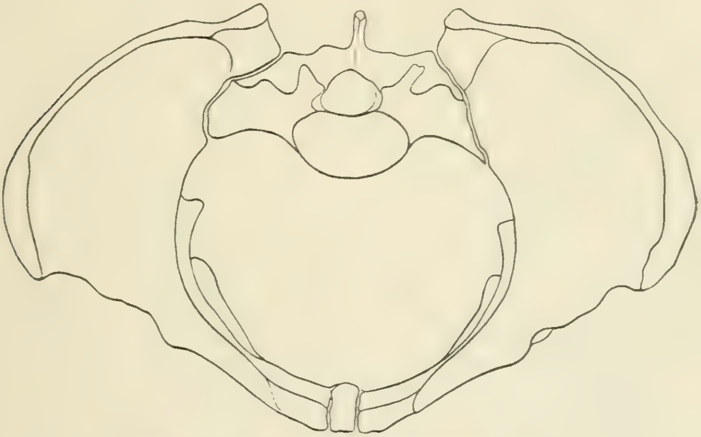

FIG. 4.—Brim of Inverted Deformed Female Pelvis.

On the other hand, the pubic arch is excessively wide, a result in part of the rickety condition. Here, then, the sacrum and ilia are male, the ischia and pubes female, and the whole pelvis rickety and somewhat stunted.

The measurements are as follows:—

External conjugate	4 ins.
Interspinous	8$\frac{3}{4}$,,
Intercristal	8$\frac{3}{8}$,,

	Conj.	Trans.	Oblique.
Brim . . .	1$\frac{1}{4}$ ins.	4$\frac{7}{8}$ ins.	4$\frac{1}{2}$ ins.
Outlet . . .	3$\frac{1}{8}$,,	5$\frac{1}{8}$,,	4 ,,

This pelvis is the result of more than one influence. The rickets gave the alteration in the curve of the iliac crests and the extreme deformity of the conjugate. The pelvis, however, is more stunted than can be accounted for by the inversion and the rickets, and therefore it might be described as inverted (ilio-sacral), rickety, generally narrowed.

The third specimen in Professor Briggs' possession is a very fine example of inversion, and is in a state of beautiful preservation. The measurements are as follows:—

Baudelocque	$6\frac{1}{4}$ ins.
Interspinous	$8\frac{3}{4}$,,
Intercristal	$9\frac{1}{2}$,,

	Conj.	Trans.	Oblique.
Brim	$3\frac{1}{4}$ ins.	$4\frac{7}{8}$ ins.	$4\frac{7}{8}$ ins. R. $4\frac{7}{8}$,, L.
Outlet	$3\frac{1}{4}$,,	4 ,,	$4\frac{1}{2}$,, R. $4\frac{1}{2}$,, L.

The sacrum is male, especially the left ala sacri, and markedly curved. The ilia are male with a typical male notch. The pelvis is symmetrical, but the left ala sacri is a little smaller than the right, and in detail the transverse process and rib-portion are, in the former, distinctly smaller.

The Brim.—It can be noted that the ala sacri on the left side is smaller than the right. The brim is thus slightly asymmetrical. The side walls are slightly more convergent than in the normal and justo-minor pelves. The ilia (flat upper expansion) are smaller.

The Lateral Aspect.—The striking feature here is the male sacro-sciatic notch (*cf.* with male and female notches in Figs. 1 and 2). The posterior aspect of the ilium is steep as in the male, but this is a little exaggerated in the figure; where the ilium meets the auricular surface the former is slightly bent (not shown in the tracing). The exaggerated curve of the sacrum is well seen. The obturator foramen is male in shape.

The outlet is female with a large pubic arch. The promontory is not seen as it should be in a normal pelvis, owing to the marked angular curvature of the sacrum (Figs. 4, 5, 6).

In this deformed female pelvis the deformity is due to an inversion of both ilia and probably of the left half of the sacrum. The sulcus auricularis of Zaaijer is well marked on the left side but is not present on the right. It is usually more frequently present in the normal female pelvis than in the male. There is also a slight false promontory at the junction of the first and second sacral vertebræ, and the tip of the coccyx is a little twisted to the right side. The sacral vertebræ number five.

The description by Dr. R. W. Johnstone of the following three pelves (Figs. 7, 8, 9) is as follows:—

"Pelvis '4.' The ischio-pubic segments are characteristically female, the subpubic arch being wide and roomy.

"The ilia both present male notches—particularly on the right side. On that (R.) side the auricular surface of the sacrum extends to three sacral vertebræ. On the left it extends to two 'and a bit'—being recognisably shorter than on the right side.

"On neither side is there a preauricular sulcus recognisable. The sacrum is female in type.

"The brim is somewhat masculine in shape and the cavity somewhat funnel-shaped.

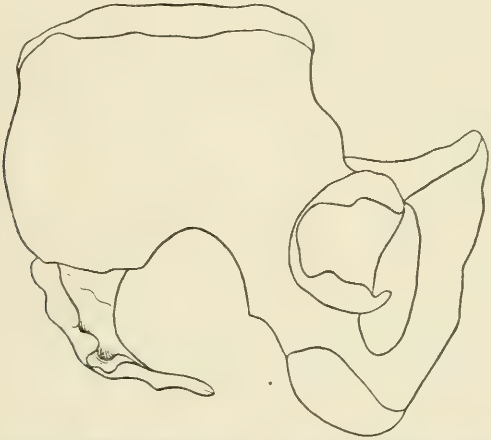

Fig. 5.—Lateral Aspect of Deformed Female Pelvis with Iliac Inversion, to show Male Notch.

"The dimensions are:—

Interspinous, 24 cm.	$9\frac{3}{5}$ ins.
Intercristal, 27·4 cm.	10·9 ,,
Conj. vera, 10·9 cm.	4·4 ,,
Trans. of brim, 13·1 cm.	5·2 ,,
Oblique of brim (R.) 12·8 cm.	5·1 ,,
,, ,, (L.) 12·4 cm.	5·1 ,,
Ant. post. of cavity, 12·5 cm.	5 ,,
Ant. post. of outlet, 11·1 cm.	4·8 ,,
Transv. of outlet, 9·6 cm.	3·8 ,,

"Pelvis '5.' The ischio-pubic segment is characteristically female. The iliac notch on both sides is masculine in type. Each auricular surface extends to three sacral vertebræ. There is no recognisable preauricular sulcus. The sacrum is broad and typically female.

The shape of the inlet and canal is masculine in type (Fig. 7).

Dimensions:—

I. Sp. 26·5
I. Cr. 30.

	A. P.	Trans.	Oblique.
Brim	11·6	13·1	R. 12·5 L. 13
Cavity	13·4	...	...
Outlet	8·5	9·3	...

"Pelvis '29.' Well-marked signs of osteo-arthritis.

"The ischio-pubic segment is typically male, the subpubic arch being narrow and the angle acute (Fig. 8).

"The ilia present typically wide female notches, that on the left side being peculiarly wide and sweeping (Fig. 9).

"The sacrum is wide and female in its characters.

"The auricular surface just reaches the third body on each side. The left side presents a faint preauricular sulcus.

"Dimensions:—

I. Sp. 24·9
I. Cr. 29·2

	A. P.	Trans.	Oblique.
Brim	9·4	13·8	12·9 on both sides.
Cavity	11·2	...	...
Outlet	...	9·5	...

"The shape of the inlet is female, wide, and rather oval. The outlet is roomy, but as the lower part of the sacrum is missing, no statement can be made about it (Figs. 7, 8, 9).

"Pelvis No. 4.

Height of symphysis = 4·5 cm. (including dried subpubic ligament).
Acetabula = 5·5 cm. vertically × 5 cm. wide.

"Pelvis No. 5.

Symphysis = 4·5 cm. (practically no ligament).
Acetabula = 5·0 × 4·9.

"Pelvis No. 29.

Symphysis = 4·25 cm. (!) (*no* ligament at all).
Acetabula = 5·2 × 5·5."

The 6th pelvis from the Royal College of Surgeons is an ilio-sacral case and need not be detailed.

The Sexing of Fragments of Pelves by Elliot Smith and Wood Jones.

I now wish to discuss, *inter alia*, the valuable contribution to the sexing of archæological pelves from portions and entire specimens, in their monograph on the *Archæological Survey of Nubia*, vol. ii., chapters iii., iv.

The material, human remains, was obtained in the excavations of a tract of land in Lower Nubia necessary for the building of a large reservoir which will ultimately flood the district when the Aswan dam is raised. In the case of the pelvic bones the questions raised were those of age, race, sex, and in certain cases the determination of the sex from a single bone present, usually the ilium.

The following extracts will indicate the general scope of the results :—

"Sex contradictions are not uncommon in the individual parts of the pelvis, and the evidence of any one indication may be fallacious at times" (*op. cit.*, ii. 259, foot of page).

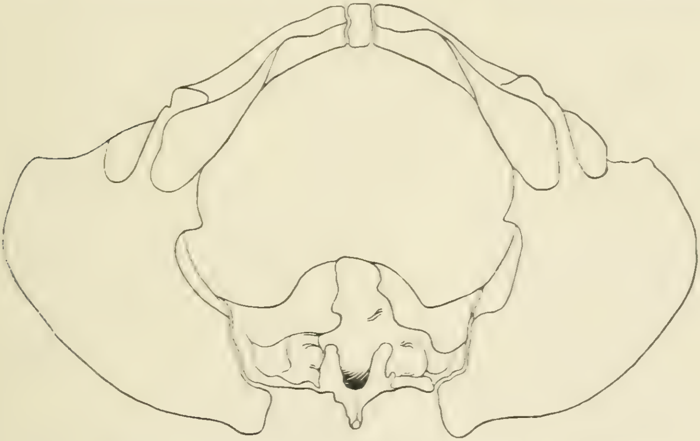

FIG. 6.—Outlet of Deformed Female Pelvis with Iliac Inversion, to show Female Character of Pubic Arch and Outlet Transverse. (Briggs.)

"The form of the pubic arch and the depth of the symphysis pubis may be very deceptive" (*op. cit.*, p. 260).

"In 24 : 1 : L. M., an undoubted woman of the Ptolemaic period, the whole of the anterior part of the pelvis had a very masculine appearance, the depth of the symphysis being 37 mm. and the subpubic angle reduced to 65 degrees" (p. 260).

This specimen is thus like the fifth of those described in the present paper (*vide* p. 20).

"We were particularly fortunate in meeting with no less than five women who died in the later stages of pregnancy, or, probably, to be more correct, died in labour. In every one of these cases the pelvis was of abnormal form and most of them exhibited a sex contradiction in some part or other" (*op. cit.*, p. 260).

The following are the measurements (*op. cit.*, p. 249):

Sex.	Inlet.		Outlet.	
	Transverse.	Aposterior.	Between ischeal spines.	Between ischeal tuberosities.
	Mm.	Mm.	Mm.	Mm.
Female, with retained fœtus . .	112	89	80	95
Female, ,, ,, . .	105	102	97	94
Female, ,, ,, . .	131	129	97	...
Female, ...	124	107	92	
Female, ...	123	116	112	...
Female, ...	123	123	115	111
A masculine type of female; pelvis undoubtedly a woman's .	116	94	81	80
———	117	97	...	...
———	127	111	95	...

"Some masculine feature was present in each of these pelves, and but for the presence of the fœtal bones within the cavity any single os innominatum might have been classed as male" (*op. cit.*, p. 260).

"The auricular surface is smaller and less uneven in men than in women" (*op. cit.*, p. 260).

"The preauricular groove is a feature to which we have come to attach much importance, and for the determination of sex in fragmentary bodies it is by far the most valuable sexual indication we have" (*op. cit.*, p. 260).

The authors draw attention to increased length of the sacrum in certain cases, the additional vertebra being caudal or cephalic, more usually the latter. "In one of our cases in which the anomaly was found in the skeleton of a woman, an unborn fœtus was retained within the pelvis" (*op. cit.*, p. 248). This is of interest, as such six vertebræd sacra, the addition being cephalic, are really funnel-shaped or so-called male pelves, and a fairly common cause of difficult labour (Whitridge Williams).

If we look at such pelves in the light of the present paper it is probable that what the authors call sex-contradiction is really *sex-ensemble* inversion involving the three primitive segments of the bony pelvis (sacrum and ossa innominata). The most common inversion is iliac, but the same mal-allotment may give a female pelvis with a male ischio-pubic segment, or smaller inverted portions.

We may now recapitulate what constitutes a typical female and male bony pelvis and what inversions may take place.

The Typical Female Bony Pelvis in the Adult.—This can only be described in general terms. The female pelvis has lighter and smoother bones, and has such diameters that a roomy cavity fit for easy parturition is developed. The iliac bones are more vertical and their posterior ends descend less steeply than in the male. The angle of the pubic arch is 70°+ to 100°. The sacro-sciatic notch is large, and usually the sulcus preauricular is present on one or both sides. The anterior mesial vertical surface of the pubes is shorter than in the male.

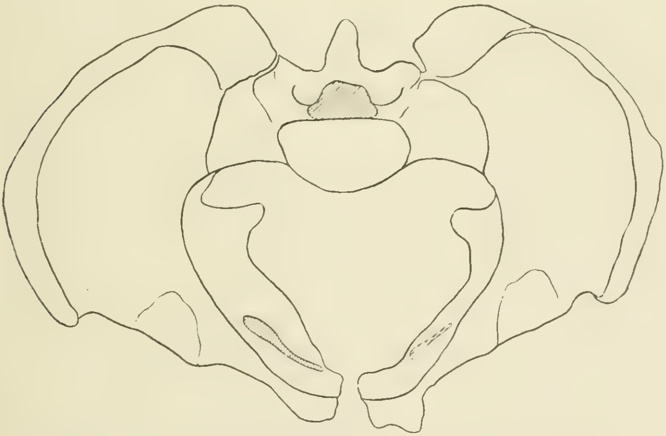

FIG. 7.—Brim and Cavity of Female Deformed Pelvis with Ischio-pubic Inversion. Note convergence of side walls.

The sacral auricular surface usually involves two vertebræ. In the funnel and kyphotic pelves three may be taken up by it.

In the *male adult pelvis*, on the other hand, the bones are rougher and heavier. The diameters are less and the inlet heart-shaped instead of kidney-shaped as in the female. The pubic angle is −70° to 70°; the sulcus preauricularis is less frequently present. The sacral auricular surface usually has two + vertebræ. For identification of sex from an innominate bone the sacro-sciatic notch is specially valuable; next to this comes the sulcus preauricularis. In the entire pelvis the sexing is easy, but what must be considered carefully in the female pelvis is the existence of inversion of the ilio-sacral and ischio-pubic segments, the former being the more frequent. Inversion of parts of these two segments may also take place independently, but our information on these minor inversions is small as yet. The question of how such inversions take place must now be considered.

THE MECHANISM OF SEGMENTAL BONY PELVIC INVERSION IN THE SPECIAL SPECIMENS CONSIDERED AT PRESENT.

I have already considered the mechanism of inversion of the *sex-ensemble*, but may repeat somewhat and expand what has previously been said. The description will gain in clearness from its application to the specific instances taken up.

What one has to explain is the presence in an adult of an opposite *sex-ensemble* structure, in the present cases, of a male ilium and male sacrum (half or whole) or male ischium and pubes in a female deformed pelvis. It is evident from what I have brought forward in previous papers that the site of the mechanism of this inversion must be sought for in the germ plasma of the germ- and sperm-cells which afterwards become gametes prior to fertilisation, and thus what we have to explain is, how did the determinants for a male ilium and sacrum or ischium and pubes become inverted, and thus abnormally *present* in one of the fertilising gametes, as we shall see, and *absent* in another of the opposite sex.

Inadequacy of the Theory of one Fertilising Gamete on each Side.—The *theory of one gamete*, and not a choice of two, on each side at fertilisation is untenable for one reason, whatever others there may be. The zygote formed by the union of one gamete on each side and not by a choice of two, may give rise ultimately to an adult male or female, each with his or her sex-gland possessing oöcytes or sperm-cells, and these are derived from the p.s.c. mass or p.g.c. mass. Thus, according to this view, primitive germ and sperm masses must be present in every zygote, one disappearing, the other persisting, which is absurd, as geometricians say.

On the theory of *a choice of two gametes on each side* we get, however, a more feasible explanation. It is now known that many low organisms have at fertilisation at least two gametes on each side, and Beard and others have given examples of many such. If we suppose that at fertilisation there are two sperm- and two germ-cells, giving rise, by maturation, to two gametes on each side, we get a much more reasonable explanation of some of the results of gametic union.

Preliminaries on this Point.—When fertilisation takes place, a zygote is formed (fertilised ovum), and this zygote is early divided into a primitive germ- or sperm-cell mass for the future sperm- and germ-cells, and a somatic part for the body or soma of the future adult. The cells of the p.g.c. or p.g.s. mass travel through the early germ layers before the Wolffian body or somatic part of the sex gland is laid down, but when that happens, they become ultimately lodged in the sex gland, forming the oöcytes in the ovary or sperm-cells in the testes.

Thus the adult body has a sex gland and a soma, the one containing the early derived sperm- or germ-cells, the other the developed product of the somatic part of the zygote laid aside. The one is germinal and for the future progeny, the other somatic and for its own generation only. It is the former that propagates and has the continuity of the germ-plasma; the latter is the mortal portion, and has in itself no propagative power. Thus it must be noted that the primitive germ- and sperm-cells are not derived from any part of the soma, as is so usually held.

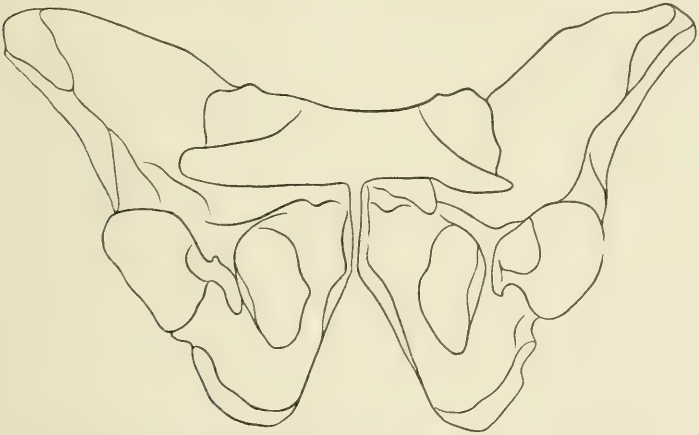

Fig. 8.—Anterior Pubic Aspect of Deformed Female Pelvis with Ischio-pubic Inversion. Note male arch and bis-ischial diameter.

The somatic germ epithelium cells covering the ovary and adjacent peritoneum are not the source of the primitive germ-cells. This has been a most largely accepted view.

When a primitive germ-cell (oöcyte) in the fœtal ovary undergoes mitosis there is longitudinal and transverse division and a looped formation of the chromosomes containing the heredity determinants. This does not result in each of the two new germ-cells being an exact replica, but there is necessarily variation, the one being, I hold, a Wolffian germ-cell, the other a non-Wolffian. The male Wolffian gamete contains determinants suitable for the male Wolffian body on which the testis forms; the female Wolffian gamete, those suitable for the Wolffian body on which the ovary forms, while the non-Wolffian gametes contain usually no *sex-ensemble* determinants.

What, therefore, the mitosis of the oöcytes or germ-cells in the foetal ovary means is probably as follows: (*a*) Multiplication of the chromosome determinants and the formation of two germ-cells from one; (*b*) variation in determinant allotment between (*c*) the Wolffian and non-Wolffian sperm- and germ-cells on each side.

(a) *Multiplication of the Chromosome Determinants.*—This is the result of mitosis, and we thus get an enormous increase in their number, especially in the case of the testis. In oöcyte and sperm-cell mitoses the division and multiplication is not equal, but a variation, and we therefore now consider—

(b) *Variation in Determinant Allotment between*

(c) *the Two Sperm- and Germ-Cells.*—The result of the mitoses is an increased formation of p.g.c. and s. cells. This power of immense multiplication and variation of living germ-plasma and its passage when the zygote is formed from a determinant to a determinate adult stage, the latter not usually reproducing its somatic condition (only in fact in identical twins), is a striking characteristic of living protoplasm.

It is highly probable that we may consider the multiplied and varied p.g.st. cells as the two kinds of sperm- and germ-cells which ultimately become gametes by the loss of the polar bodies (maturation).

These mitotic changes have been studied by von Winiwarter especially, and his researches have also been repeated by others. In the early fœtal ovary the primitive germ-cells are found to undergo mitoses, and it is unfortunate that these are usually interpreted as indicating the development of the germ-cells from the germ epithelium covering the ovary or testis. These double germ- and sperm-cells are microscopically the same in each sex, but differ in their contained chromosomes. We may suppose that one oöcyte has certain determinants, the other complementary ones, and they may be called the Wolffian and non-Wolffian oöcyte or ovum, the former containing the *sex-ensemble* determinants and some somatic determinants. The typical *Wolffian* one has thus the *sex-ensemble* determinants along with certain somatic ones; the *non-Wolffian* has usually no *sex-ensemble* determinants but a certain number of somatic determinants. There are Wolffian sperm-cells and non-Wolffian ones on the same plan. The two kinds of germ-cells arising by mitoses will vary greatly in their allotment, but the most effective probability result will be that of a Wolffian male gamete ultimately combining with a non-Wolffian female gamete and a Wolffian female gamete with a non-Wolffian male gamete. The Wolffian ones should have the Wolffian body and *sex-ensemble* determinants, the non-Wolffian none of these, but certain purely somatic determinants. When really effective double germ-cells are a result they will perpetuate this condition markedly, as the p.g.c. mass will thus contain a large number of like effectives.

In the pubiotomy inversion case I suppose the female Wolffian germ-cell, or gamete after maturation, had no ilio-sacral bony determinants and that it met a male non-Wolffian gamete with the male ilio-sacral determinants, an inversion of such from variation, and that thus the female zygote got ilio-sacral male determinants for part of its pelvis. The pelvis would thus be inverted in its ilio-sacral components. Normally the female Wolffian gamete should have had, *inter alia*, the female ilium determinants and the non-Wolffian sperm-cell no *sex-ensemble* molecule in whole or in part, but the loss on the one side and the abnormal presence on the other gave the inversion when these united.

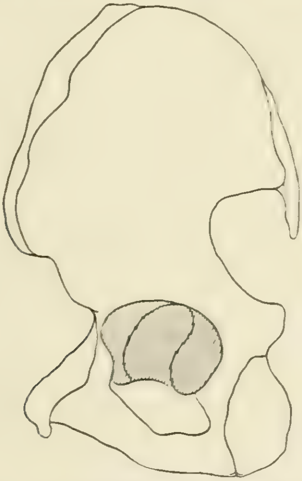

Fig. 9.—Lateral Aspect of Deformed Female Pelvis with Ischio-pubic Inversion. Note female sacro-sciatic notch. (R. W. Johnstone, from Sir Halliday Croom's museum.)

Thus we may suppose the following:—

For a normal female pelvis, a Wolffian female gamete with the complete *sex-ensemble* molecule meets a non-Wolffian male gamete with no *sex-ensemble* determinants; result, *inter alia*, a normal female pelvis.

For an ilio-sacral inversion in the female, a Wolffian female gamete *minus* the determinants for the sacrum and ilium meets a non-Wolffian male gamete with these determinants abnormally present; result, an inverted female pelvis relative to the sacrum and ilium.

The gist of the mechanism of inversion of part of the *sex-ensemble* is as follows. The inversion happens in the determinants when the sperm-cells and germ-cells are undergoing mitosis in the fœtal sex-gland and is due to the absence, by variation, from a Wolffian sperm- or germ-cell, of certain *sex-ensemble* determinants which should be normally present, and their presence in a non-Wolffian one of the opposite sex where they should normally be absent. When such conjugate, inversion necessarily takes place. Such an inversion could be hereditary, *i.e.* transmitted by distribution. The mother with an inverted bony pelvis would have, for such a deformity, by multiplication, similarly defective *sex-ensemble* molecules in her ovary, which would pass on this condition in certain of her offspring.

Thus we get a congenital inversion of certain pelvic determinants and their distribution in the future generations. As the male ilium and sacral wings, and also the ischium and pubes, are smaller in the male than in the female, we therefore in such inversions get a seriously deformed female pelvis.

THE QUESTION OF NARROW PELVIC OUTLET.

The question of narrowed pelvic outlet has been much neglected by obstetricians but has been carefully studied by Schauta, Breus and Kolisko, Whitridge Williams, Klien and others. We may leave out of account malacosteon, justo-minor, Naegele and Roberts' pelves, as these are readily understood so far as the narrowed outlet is concerned. The pelves specially to be studied under this aspect are funnel-shaped, kyphotic, and inverted pelves, especially the ischio-pubic form.

Funnel-shaped Pelves.—In this form the contraction is at the outlet, the pubic arch being narrowed and the slope of the lateral pelvic walls increased. What lies at the bottom of this change is lumbo-sacral assimilation—high assimilation, as it is called. Instead of the sacral vertebræ numbering five, normal sacral blending or assimilation, the fourth lumbar vertebra is also blended with the sacrum, high blending, and often the first sacral makes a false promontory. Thus the promontory is high, lying nearly at the level of the crests of the ilia at their sacral ends. The result of this is to tilt in the ischial tuberosities and thus narrow the arch. and approximate the ischial tuberosities so that we get the transverse outlet diameter reduced, 8 cm. being the limit of safety for labour, and sometimes below this. The term male pelvis sometimes applied to it is misleading and quite erroneous.

In the *kyphotic* pelvis we have a similarly narrowed outlet and also in some cases lumbo-sacral assimilation. The brim of the kyphotic pelvis is enlarged, the conjugate abnormally so, while the transverse is relatively to it enlarged also, but not so, absolutely.

These features of this pelvis have been worked out by Breisky, Freeland Barbour, and Klien among others. The brim increase is caused by the spinal kyphosis acting in a backward direction with fixation of the anterior part of the brim by the Y-shaped ligament (between the anterior inter-trochanteric line of the femur and the inferior anterior spinous process).

The kyphotic pelvic brim is in this subjected to an anterior and posterior pull, elongating the brim, while the high assimilation makes the transverse longer and the inter-ischial less.

The kyphotic pelvis is therefore an acquired one, due to the factors given above.

I defer, however, the consideration of the changes in the kyphotic pelvis for a later communication. The high assimilation is a factor in the kyphotic pelvis hitherto neglected, but a consideration of this at present would unduly lengthen the present paper.

The Inverted Pelvis.—There are two major varieties of inverted pelvis—the ilio-sacral and the ischio-pubic; the former being the common one, the latter much more rare.

The Ischio-sacral Form.—Here the deformity is at the brim as is seen in Figs. 1-7, and such a pelvis requires pubiotomy or Cæsarean section. The outlet is also narrowed, but not to the extent of that of the funnel-shaped or kyphotic pelvis, as in the ilio-sacral lumbo-sacral assimilation has not yet been met with. It may, however, exist as a coincidence, and then the outlet of the funnel-shaped pelvis would also be present in a more marked degree.

In the *ischio-pubic* variety the ischium and pubes are male, and the ilium and sacral, female; thus the pubic arch is male and the intertuberosity diameter markedly diminished (Fig. 8, and measurements, p. 20); as the ilium and sacrum are female, the former having a large sacro-sciatic notch, the real labour hindrance is at the outlet and is formidable.

Methods of Measuring the Pelvic Outlet.—This has been discussed by several observers, and Whitridge Williams considers it carefully.

By Palpation.—The pubic arch and the interischial diameter can be outlined digitally with the patient in the lithotomy posture. The sacral vertebræ can also be enumerated by vaginal examination, and high assimilation in the funnel-shaped pelvis and kyphotic pelvis ascertained. In this way Whitridge Williams determined this point in some of his funnel-shaped cases.

By Instrumental Examination.—This may be ascertained with the ordinary, or special callipers (see Whitridge Williams, *op. cit.*). Owing to the narrowness of the pubic arch the available space for exit of the head is in the triangular space outlined by the points of the ischial tuberosities and the tips of the coccyx. If the intertuberosity diameter is mapped out and bisected, the anterior and posterior sagittal diameters can be measured as well as the entire outlet conjugate (Klien).

It is to be noted that the forward rotation of the tip of the coccyx is often marked in the kyphotic pelvis, and thus the available exit greatly diminished as an addition to the narrowing of the pubic arch.

Skiagram Examination.—Important information can probably be obtained from skiagraphs of the lateral aspect of the pelvis to determine the maleness or femaleness of the sacro-sciatic notch, but on this point I have as yet no exact information. In this way the funnel-shaped and kyphotic pelves can be separated from the inverted cases where the notch gives the guide to the diagnosis. In the ilio-sacral inversion the sacro-sciatic notch is male, that is, small (Figs. 2, 5).

Labour Prognosis.—In the *inverted pelvis* the serious deformity is found at the outlet of the rare ischio-pubic inversion (*vide* measurements, p. 20). This narrowing is less in the ilio-sacral inversion, but here, as already said, the obstruction is at the brim and requires pubiotomy or Cæsarean section.

According to Williams, in narrow outlet "spontaneous labour" in funnel pelves "is unlikely to occur with a transverse diameter of 8 cm. unless the posterior sagittal measures at least 7·5 cm. Spontaneous labour is unlikely to occur with a transverse of 6·5 cm. unless the posterior sagittal measures at least 8·5 cm."; "spontaneous labour is unlikely to occur with a transverse diameter of 5·5 cm. unless the posterior sagittal measures at least 10 cm." (*op. cit.*, separate paper, p. 8). Much the same prognosis holds good for the inverted pelvis.

Inverted pelvic bony segments give rise, therefore, to serious pelvic deformities and are congenital, not acquired, unless one regards high assimilation as acquired. It is better considered, however, as a developmental condition. We thus associate ilio-sacral inversion with brim and outlet deformity; the ischio-pubic with that of the outlet.

This point may be summed up as follows:—*Funnel-shaped pelves;* high assimilation and secondary outlet narrowing; sacro-sciatic notch large (?); arrest of head at outlet.

SUMMARY.

The following is a summary of the views expressed in the present paper:—

1. The form and size of the sacro-sciatic notch (incisura ischiadica major) is a valuable aid in the diagnosis of the sex of a single innominate bone.

2. It is not quite absolute, as the ilium of the female pelvis may occasionally be inverted.

3. This inversion of the sacrum and ilium gives rise in the female inlet to a marked and serious deformity of the pelvis, necessitating operative measures, usually of a cutting nature, during labour.

4. In all other female deformed pelves the notch is female, but in the Naegele pelvis on one side where the deformity is, and in the Roberts' pelvis on both sides, the notch is smaller and male-like. The ankylosis of the sacro-iliac synchondrosis in the Naegele and Roberts' will prevent any mistake being made as to the sex of the specimen.

5. The ischio-pubic elements of the bony pelvis are more rarely inverted into the female, and as yet I have found only one, and Elliot Smith and Wood Jones record another (*vide antea*, p. 21).

6. A six-vertebræd sacrum is found in the funnel pelvis as Breus and Kolisko, Whitridge Williams, and others have shewn.

7. In the female kyphotic pelvis the sacral auricular surface may lie in three vertebræ, and there is usually high assimilation.

8. There is therefore a new cause for deformity of the female pelvis, and such may be termed ilio-sacral or ischio-pubic inverted female pelves; the former is the more common, and inverted bony pelvis may be used as a common term.

9. Both in normal and abnormal pelves the bearing of the lateral aspects of the pelvis have been too much neglected by obstetricians. The important structure to be noted here is the great sacro-sciatic notch (incisura ischiadica major).

10. This inversion takes place most probably when double germ- and sperm-cells are formed in the early mitoses of these

structures in the fœtal development of the sex-gland. Such mitoses cause variation, and when it happens that some determinants for the *sex-ensemble* are absent from the Wolffian germ-cells and present in the non-Wolffian sperm-cells, the opposite of their usual allotment, inversion follows.

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THE INCIDENCE OF TUBERCULOSIS.

By THEODORE SHENNAN, M.D., F.R.C.S.E.,
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I hope it may be considered of value if I amplify and discuss some of the data upon which my Report to the International Tuberculosis Conference of 1913 was based.

Most of us recognise that we are very liable to be led astray if we place too much reliance upon statistics. If we consider, for example, how different is the practical experience, and how varied the training, the scientific knowledge, the precision and skill in diagnosis of the multitude of practitioners upon whose death certificates the Registrar-General's statistical tables are based, we must admit that in dealing with a disease such as tuberculosis, its protean aspects must appeal to different men in different ways. In what is apparently a similar tuberculous process one man may see an end stage, and another an earlier stage; one may focus his attention upon a metastatic terminal manifestation like meningitis, whereas another may attach more importance to the glandular or pulmonary tuberculosis from which the infection has been generalised. Hence the same case, displaying manifestations such as I have suggested, may be certified as tuberculous meningitis, or glandular tuberculosis, or phthisis pulmonalis, or general tuberculosis, according to the indications regarded as most important by the individual practitioner. Moreover, as practitioners generally become accustomed to a more precise nomenclature, and to the employment of more exact methods of diagnosis, ambiguous terms such as "scrofula" tend to disappear from the Registrar-General's tables, not because such morbid conditions themselves have ceased to prevail, but because cases formerly classed under these headings are now placed under others which more correctly indicate the nature of the disease.

But, even if we admit the innate frailties of statistics, we may gain some information which seems important from these special statistics in which we are interested—the Registrar-General's Tables of Death-Rates from different diseases—provided that we deal with large numbers of individuals, over considerable periods of time, the wide extent of our inquiry tending to reduce the range of probable error.

TABLE NO. I.*

tistics giving the Death-Rates from Tuberculosis per Million living at eleven Age-periods, in England and Wales and in Scotland; calculated from the Registrar-General's Reports. 1891-1900; 1901-1910.

	ENGLAND AND WALES.						SCOTLAND.					
	1891-1900.			1901-1910.			1891-1900.			1901-1910.		
	All Tubercle.	Phthisis.	Tubercle, not Phthisis.	All Tubercle.	Phthisis.	Tubercle, not Phthisis.	All Tubercle.	Phthisis.	Tubercle, not Phthisis.	All Tubercle.	Phthisis.	Tubercle, not Phthisis.
ll Ages	2010	1391	619	1648	1157	491	2361	1684	677	2090	1380	710
0 to 5	3930	413	3517	2880	327	2553	3841	516	3325	3760	403	3357
5 to 10	724	206	518	665	165	500	1165	376	789	1170	300	870
0 to 15	669	368	301	586	283	303	1196	745	451	1090	560	530
5 to 20	1396	1144	252	1124	872	252	2485	2124	361	1930	1510	420
0 to 25	1936	1730	206	1575	1369	206	2954	2701	253	2430	2100	330
5 to 35	2302	2135	167	1884	1701	183	**3014**	**2801**	193	**2520**	**2250**	270
5 to 45	**2742**	**2592**	150	2137	1971	166	2772	2617	155	2310	2100	210
5 to 55	2492	2362	130	**2148**	**1990**	158	2093	1971	122	1980	1790	190
5 to 65	2007	1881	126	1828	1664	164	1682	1573	109	1560	1380	180
5 to 75	1263	1154	109	1235	1087	148	1105	1021	84	1090	910	180
upwards	512	437	75	558	440	118	542	466	76	502	391	111

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* In presenting these statistics, I acknowledge with pleasure the help of Dr. Crauford Dunlop, Director of Medical Statistics for Scotland, who had them calculated for me.

This table shows noteworthy differences between the death-rates from tuberculosis in England and Wales and in Scotland, and seems to indicate that, even in these countries, so closely related in most respects, important differences exist in the conditions of life of the inhabitants, and in the possibilities and modes of infection by the tubercle bacillus.

Scotland is apparently about ten years behind the sister countries in the fight against tuberculosis, the total tuberculosis death-rate for England and Wales during the 1891 to 1900 decennium approximating to, but still being below that for Scotland during the later decennium. The death-rate from phthisis pulmonalis for Scotland during the 1891 to 1900 period was apparently nearly 300 per million higher than that for England and Wales during the same period; and ten years more were required to reduce it to the 1891 to 1900 figure for England and Wales. Comparing the corresponding figures for 1901 to 1910, the Scottish death-rate from phthisis was still 223 per million higher than that for England and Wales.

Another interesting point of difference brought out by this table is that in Scotland the maximum death-rate from phthisis pulmonalis, during both decennia, was reached in the 25 to 35 age-period, whereas in England and Wales it was reached in the 35 to 45 age-period during the 1891 to 1900 decennium, but in the 45 to 55 age-period during the 1901 to 1910 decennium, this being the result of a great reduction—over 600 per million—in the death-rate in the 35 to 45 age-period, sufficient to bring the figures for this period very slightly below those for the 45 to 55 period.

The incidence of all varieties of tuberculosis on the earlier years of life is evidently much heavier in Scotland than in England and Wales, and this no doubt accounts to some extent for the earlier occurrence of the maximum phthisis death-rate in Scotland, the more resistant and the immune individuals surviving, so that the phthisis death-rates for most of the later age-periods are distinctly below those for England and Wales. The ultimate explanation is not immediately apparent, but one would judge that it is not wholly to be found in the more severe climatic conditions prevailing in Scotland.

All the tables illustrate the well-recognised higher incidence of tuberculous disease, other than pulmonary tuberculosis, on the earlier years of life and its continuous diminution as age increases. But a comparison of the two Scottish decennial tables draws attention to a point which seems to have been missed, and which, if we can depend on these statistics, merits serious contemplation. In these, every age-period without exception, during the later decennium, shows an increase in the death-rate from these other forms of tuberculous disease.

On comparing the corresponding tables for England and Wales, we find that the death-rates from tuberculous diseases other than phthisis have been greatly reduced in the 0 to 5 age-period, and to a slight extent in the 5 to 10 age-period. They are practically stationary in the 10 to 25 age-periods; and thereafter they show increases during the later decennium, but these are not so great as in the case of Scotland.

These other forms of tuberculous disease are registered under the headings "tabes mesenterica," "scrofula," "tuberculous meningitis," "osteitis," and "arthritis." If, then, these figures are correct, they show that there is something seriously wanting in the measures taken for the prevention of infection. Further, account must be taken of recent investigations which demonstrate that a high percentage of cases of tuberculous osteitis are of bovine origin, and a similar etiology has long been recognised for a large proportion of cases of tabes mesenterica. Therefore much of this apparently increasing death-rate is caused by forms of tuberculosis which are to a great extent preventable.

As I have already remarked, however, it is permissible to accept these conclusions as strongly suggestive only, in view of the doubt as to the correctness of many of the diagnoses upon which the tables are based.

I found some support for the above conclusions in my post-mortem statistics from the Royal Edinburgh Hospital for Sick Children. The numbers are small and concern only 1416 children, of whom 562 either died from tuberculosis, or, having died from other causes, showed evidence of active or latent tuberculosis in some part of the body.

TABLE II.

	1886-1902.	1910-1913.
	Per cent.	Per cent.
Lymphatic glands tuberculous . . .	83·7	69·4
Thoracic glands tuberculous	69·2	53·1
Abdominal glands tuberculous . . .	54·4	45·0
Both groups tuberculous	39·9	29·7
Thoracic glands alone affected . . .	29·5	15·3
Abdominal glands alone affected . . .	13·5	13·5

413 cases belonged to the 1886 to 1902 period, and 149 to the later period. This table shows that there was a very considerable percentage diminution in the cases with thoracic gland tuberculosis coming to post-mortem examination, that is, in tuberculosis of the glands draining the respiratory portal, whereas, in all cases in which the abdominal glands were tuberculous—that is, either alone, or with accompanying thoracic gland tuberculosis—the percentage was diminished to a much smaller extent, and there was *no* percentage diminution in the cases in which the abdominal glands alone were affected.

Table II., therefore, supplies evidence that a distinct improvement has taken place in the case of tuberculous infections entering by way of the respiratory portal; but it shows also that tuberculous infections by way of the alimentary portal have diminished to a much lesser degree, and even this apparent moderate improvement is open to some doubt.

If we now consider how the matter stands in the case of smaller aggregations of individuals, for example, in different burghs in Scotland, the results here also are suggestive.

During 1913 the Registrar-General for Scotland began to refer all deaths to the burghs in which the deceased had lived.

TABLE III.

Scotland, January to June 1913. *Corrected Death-Rates in certain of the Larger Burghs.*

			Deaths from Tuberculosis.		
	Population to middle of 1913.	Deaths, all Causes.	Total No.	Per 100 Deaths.	Per 1000 Population.
All Scotland . .	4,733,700	39,417	4,369	11·08	1·84
Perth . . .	20,200	291	28	9·60	2·77
Greenock . .	77,800	762	106	13·90	2·72
Inverness . .	21,300	194	26	13·50	2·44
Glasgow . . .	1,021,500	9,442	1,178	12·40	2·30
Paisley . . .	85,600	691	92	13·30	2·15
Coatbridge . .	43,400	361	45	12·46	2·07
Dundee . . .	165,900	1,522	169	11·10	2·03
Falkirk . . .	35,600	259	33	12·70	1·85
Aberdeen . .	162,700	1,562	150	9·90	1·84
Edinburgh . .	320,300	2,474	286	11·56	1·78
Kirkcaldy . .	40,000	287	34	11·80	1·70
Airdrie . . .	24,000	185	14	7·50	1·16
Forfar . . .	10,400	85	4	4·70	0·77
St. Andrews . .	15,000	80	5	6·25	0·66

It is very evident, on considering the data supplied in this table, that the death-rates do *not* vary in accordance with the numbers or density of the population. Additional local conditions must prevail, such as variations in the rainfall, in drainage, in the situation of the towns, differences in the modes of life, and other factors which react on the local death-rate from tuberculosis. The actual table given applies, of course, only to the first half of 1913, and does not indicate the relative figures for these burghs, or their relative position in respect of the tuberculosis death-rate, for any other six-months' or twelve-months' period. They vary from year to year, so that a community which prides itself one year upon its low tuberculosis mortality may the next year be amongst those which suffer most heavily from the disease.

Professor Matthew Hay, Medical Officer of Health for the City of Aberdeen, has drawn my attention to another very important point, and this is that. however much the total tuberculosis death-rates may vary in different burghs, in some of them the deaths from tuberculous diseases other than phthisis form constantly a higher proportion than in others.

This problem merits careful investigation. Many of these cases are of bovine origin, and Professor Hay suggests that it may be, in part at least, a question connected with the age of the cattle kept for milking purposes. In some parts of the country cows are purchased after calving, and after one season of milking are fattened off, while still young, for the butcher. In other parts the cow is simply a milk producer, and passes through frequent successive calvings and lactations. Obviously, the older a cow is, particularly if it be kept under insanitary and unhygienic conditions, the more liable is it to acquire tuberculosis, and its milk to become infective.

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CLINICAL RECORDS.

"HYSTERICAL" MASTOIDITIS.

By J. S. FRASER, F.R.C.S.

At mid-day on 22nd September 1915 the writer, on his way to the railway station after a visit to the country, was asked to see a female patient, aged 34, who complained of severe pain in, and discharge from, the right ear of five days' duration. The patient stated that the pain was so severe as to prevent sleep, and also complained of tenderness and swelling in the right temporal region. She said she had had discharge from the right ear eighteen months before, and since that time had had attacks of pain in the right side of the head, and had suffered from dizziness whenever she stood up after stooping. She had often suffered from nausea, but had not vomited. On further questioning, the patient stated that six years before she had had a severe attack of earache on the left side, and showed the marks of a mastoid operation behind the left ear, and of an incision along the anterior border of the left sterno-mastoid (presumably for ligation of the internal jugular vein). She informed the writer that since this operation she had been completely deaf in the left ear. A friend who was looking after the patient reported that the temperature had been 99·2° F. on the previous evening, and the patient stated that she had had a shivering attack. Her friend could give no information on this subject.

Examination of the right ear showed a considerable amount of blood-stained discharge in the right external meatus and hollow of the concha. Appliances for syringing the ear and inspecting the drumhead were not available. There was no mastoid swelling on the right side, but there was apparently marked pain on pressure over the mastoid antrum and also at the tip of the process. Pain was also complained of when the right auricle was pulled on, and tenderness was present along the line of the internal jugular vein though no enlarged glands were felt.

The case was apparently one of acute exacerbation of a chronic purulent otitis media, and it was thought that the peculiar blood-stained character of the discharge was probably due to hæmorrhage from an aural polypus, though in the absence of appliances for otoscopy it was impossible to be sure. The scars over the left mastoid and internal jugular appeared to confirm this view of the case. The writer therefore decided to have the patient removed as soon as possible to the Royal Infirmary for operation. Instructions were accordingly given that the mastoid area should be shaved and prepared with iodine, and that sterile dressings should be applied over the ear before the patient was removed in the ambulance to Edinburgh.

Early in the afternoon the writer communicated with the clinical assistant (Dr. H. Chaffer) in charge of Ward 38, and asked him to come up and go thoroughly into the case before operation, which was fixed for 5 P.M. When the writer arrived at the Infirmary at this hour he was surprised to hear that the right tympanic membrane was normal. Dr. Chaffer also stated that the left tympanic membrane was in the same condition. Further, there had been no reappearance of the copious blood-stained discharge from the right meatus. *Functional examination* of the ear had shown that bone conduction on the vertex was *shortened.* The tuning-fork in the middle line of the vertex was heard best in the right (recently diseased) ear, and on this side the *air conduction was greater than the bone conduction.* The watch was heard on contact only by the right ear, but the conversation voice was heard at 18 inches. The lower-pitched tuning-forks (C_{16} and C_{32}) were not heard at all either by air or by bone conduction, but the remaining C forks, up to C_{2048}, were heard by both air and bone conduction. With the noise apparatus in the left ear the patient could hear the raised voice at one foot by the right ear. The upper-tone limit was 11,000 D.V.S. (It should be noted that these results do not correspond to any of the ordinary forms of deafness—sound-conduction deafness, nerve deafness, or mixed middle and inner ear deafness).

The patient had already been taken to the operating theatre and anæsthesia had just been commenced. The writer at once re-examined the patient and not only confirmed Dr. Chaffer's findings but also noted on the posterior wall of the external meatus a small wound surrounded by a little dry blood-clot. The diagnosis now appeared to be tolerably clear as one of "hysterical mastoiditis," though the possibility of mastoid disease due to the streptococcus mucosus could not be absolutely excluded. (This organism gives rise to a comparatively mild attack of catarrhal otitis media. Within a short time the drumhead almost entirely regains its normal appearance, but the attack is followed by slight hissing noises in the ear. It may be some months later that symptoms of a serious intracranial complication suddenly arise though the tympanic membrane appears normal. If the history be not carefully inquired into, one is apt to regard such cases as instances of "idiopathic" mastoiditis.)

The patient was accordingly put lightly under the anæsthetic, and dressings and bandages were applied though no operation was performed.

23*rd September* 1915.—The patient has had a good night. Temperature, normal; pulse, 80. This morning patient complains of headache and says that she is now *quite deaf in both ears.* She will not answer questions unless she can watch the face of the person who speaks to her. (She apparently has learnt lip-reading during the night!) The patient was at once placed in the side ward behind screens. She received no letters and was not allowed to see her friends. One of her friends who came to inquire for her to-day informed the Sister that the hæmorrhage from the patient's right ear had been so profuse that it ran down her cheek and neck.

25th September.—Patient is better. She can now hear if one speaks in a loud voice close to the right ear. The temperature is normal. The patient states that she is ready to go home.

26th September.—Dressings removed. No discharge from the right ear. The patient was informed that no operation had been carried out on her ear, and replied that she had *all along been sure of this.*

The writer communicated with Mr. R. Alec. Walker of Peterborough, under whose care the patient had been six years ago, and in reply received a letter which he gratefully acknowledges, and from which the following extracts may be quoted:—

"When I first saw Miss . . . she had just been sent home from . . . , where she had been a schoolmistress. She had just come from an Ear and Throat Hospital, where an operation had been contemplated but not performed. I heard from the surgeon under whose care she had been, and under chloroform I incised the left membrane, with temporary relief. A few days afterwards, as she was apparently suffering from acute mastoid disease, I took her into hospital and operated. As far as I can recollect the details of the case, I could find no pus at the time of the operation. About two or three days later I ligatured the jugular vein, as there was fever, pain, tenderness, and inflammation. On the next day or the day after about a drachm of pus came away from the meatus or wound, and her temperature became normal, her pain and tenderness ceased, and in a few days the wound healed. There was very little more discharge, and the patient went home. Not very many days afterwards she was apparently very ill with symptoms of mastoid disease on the other (right) side—extreme pain and tenderness, rigors, etc., but no redness or swelling. After a few days of extraordinarily high and irregular temperature, during which she begged me to operate on the second ear, I discovered that her high temperature and rigors coincided with the advent of a recently-filled hot water-bottle, and I gave her such a scolding that I believe she has never forgiven me. I was put on the scent by the patient overdoing the temperature.

The 'rigors' occurred at such curious times of the day and the temperature was so remarkably high. During the three or four days on which this was going on I always found the temperature normal, though I varied the time of my visits. I then learnt that the patient's sister gave her the thermometer to manipulate."

"I have seen very little of . . . since, and whenever I have heard of her she has been in some trouble—illness or domestic worries. At various times she has gone into hospital to have her kidney fixed, or her appendix removed, or oöphorectomy performed, and I believe she has had one or more of these operations. I have written more than once to surgeons about my share in her treatment."

Remarks.—Most of us have heard of the epileptic patient who wore a chest-protector bearing the legend "Please do not operate on me for appendicitis." It would be a great advantage if the patient, whose history is given above, could be induced to wear a somewhat similar placard. The case illustrates the necessity for a thorough examination of the ear (otoscopic and functional) before operation.

The writer is indebted to Dr. Logan Turner for his kind permission to admit the patient to Ward 38 and to record the case.

NEURITIS OF COCHLEAR DIVISION OF THE EIGHTH NERVE FOLLOWING EXPOSURE TO COLD.

By J. S. FRASER, F.R.C.S.

It would appear that "cold" may affect the ear in two ways:—

1. When due to infection, as from breathing foul atmospheres in a theatre or picture house and coming out into the external air, "cold" not infrequently gives rise to acute naso-pharyngitis, and thus (*viâ* the Eustachian tube) to acute otitis media. This may be only slight in degree—a Eustachian catarrh which causes a "closed-up" feeling in one or both ears for a day or two—or it may be a more severe attack of catarrhal or purulent otitis media which reaches the tympanic cavity, mastoid antrum, and air-cells, and is accompanied by pain, tinnitus, and deafness. This condition may in the milder catarrhal cases resolve spontaneously without discharge from the ear, but in the more severe purulent cases it is followed by otorrhœa after a period which varies from a few hours to several days or even weeks.

2. On the other hand, "cold" in the form of a cold wind or draught blowing on one ear appears rather to give rise to a lesion

of the auditory or facial nerve (or both). Such cases not infrequently arise when people fall asleep in a railway carriage and one side of the face is subjected for a considerable period to a cold draught from an open window. The late Dr. Alexander Bruce and the present writer recorded a case belonging to this category (*Review of Neurology*, June 1910). The patient was a piermaster, aged 65, who had been exposed to intense cold at his work on 1st December 1907. When he woke the following morning he complained of extreme giddiness, deafness, and noises in the left ear, and the left side of the face was paralysed. The giddiness was so severe as to prevent the patient leaving his bed. The patient died four months later, and microscopic examination of the affected ear showed that the labyrinth was healthy, but that there was a marked infiltration within the perineural sheath of the 7th and 8th nerves.

Present Case.—Female, aged 30, was seen on the 7th of December 1914. The patient stated that a week before she had been exposed to severe cold, just at the onset of her menstrual period. Her ears had always been very sensitive, and she had usually guarded them from a cold wind by holding her muff up to her face. On waking in the morning after the exposure to cold she complained of deafness, and noises in the left ear like the escape of gas. There was no giddiness or facial paralysis. The patient stated that one of her sisters was deaf, and that her father had been deaf for some years before his death, though "just before the end he heard quite well again." The patient said that she had always been able to hear well with the left (affected) ear and had been accustomed to use this ear at the telephone. Before the ear trouble began she had had a lot of worry, and had not been sleeping well.

Examination.—Examination of the nose and pharynx showed normal conditions. Both drumheads were healthy. There were no signs of otitis media. The watch was heard on the forehead and both mastoids. By the right ear it was heard at normal distance, but in the left side the patient could not hear the watch even on contact. The lower pitched tuning-forks—C_{16}, C_{32}, C_{64}, and C_{128}—were heard by air conduction by the right ear only. The other tuning-forks—C_{256}, C_{512}, C_{1024}, and C_{2048}—were apparently heard by both ears, but much better by the right ear than by the left. (As will be seen later, the patient was unable to hear any forks when the attention of the good ear was occupied by the noise apparatus.) The tuning-fork placed on the vertex was lateralised to the good ear. Rinne's test was apparently negative on the affected side, that is to say, the patient only heard the tuning-fork (C_{256}) for a short time by air conduction, and after this had stopped she heard it when placed on the left mastoid, but stated that it sounded in the right ear. The upper tone-limit on the right side was 15,000 D.V.S.; on the left side it was apparently 11,000 when the good ear was closed by the finger, but, with the noise apparatus in the good ear, she could not hear the monochord at all. With the right ear closed with the finger the patient could only hear the raised voice at one foot, and with the noise apparatus in the right ear she appeared to be quite deaf. The hearing in the right ear was normal for watch and whisper. The catheter was passed on the left side, and the air entered the tympanic cavity quite well. This procedure was followed by no improvement in the hearing. There was no spontaneous nystagmus, no Rhombergism, and no pointing error; but at this time the patient objected to the investigation of the vestibular apparatus by the caloric test. The case was regarded as one of *neuritis of the cochlear nerve*. Small doses of potassium iodide with tincture of nux vomica were prescribed and small blisters applied behind, below, and in front of the left ear.

10*th December* 1914.—Patient reports that the right (good) ear feels somewhat "hazy." The noises in the left ear now resemble the sound of a whistle. With the noise apparatus in the right ear patient cannot hear any of the tuning-forks with the left ear, nor can she hear the monochord.

23*rd December*.—Tinnitus continues troublesome, but the patient states that she can hear a cart passing or water running when the right (good) ear is closed. Even with the noise apparatus in the good ear the patient can now hear the lower and medium forks as musical sounds, but the upper tones are mere grating noises. (Potassium iodide stopped and perchloride of mercury ($\frac{1}{30}$ gr.) in pill form given twice daily to relieve tinnitus.)

14*th January* 1915.—With the noise apparatus in the right ear she now hears the lower forks as musical tones with the left ear, but cannot hear the monochord at all. She hears the conversation voice at four feet (finger-closure of right ear) and the raised voice at two feet with the noise apparatus in the right ear. Tinnitus improved. Perchloride of mercury stopped and glycerophosphates with strychnine substituted.)

2*nd February*.—Caloric reaction. Warm syringing of the right ear produced horizontal and rotatory nystagmus to the right after thirty seconds. The left (diseased) ear gave a similar result. Thus there is evidently no reduction of sensibility of the vestibular apparatus.

Patient states that music is very disagreeable, as a note sounds different in the two ears.

18th March.—The conversation voice is now heard at eight feet with the good ear closed with the finger, and the raised voice at four feet with the noise apparatus in the good ear.

29th September.—The condition is practically *in statu quo.* The buzzing sound is not so bad, but is still present, and the left ear still feels "stuffed up." With the noise apparatus in the good ear the patient hears the lower forks as musical notes, but still hears the upper tones (C_{1024} and C_{2048}) as if they were produced by the squeaking of a slate pencil, and she notices a curious "shaky" feeling in the left ear when listening to C_{256} and C_{512}. The monochord, *i.e.* tones over 6000 D.V.S., is not heard with the noise apparatus in the good ear.

Remarks.—Ruttin has pointed out that in labyrinthitis both parts of the inner ear are affected because the condition begins as an inflammation in the perilymphatic space—a space which is common both to the cochlear and to the vestibular parts of the inner ear. On the other hand, in neuritis of the eighth nerve one or other of the divisions (cochlear or vestibular) may be affected alone—as in the present case. Quinine and the salicylates also affect the cochlear portion of the nervous apparatus. From the clinical point of view it is interesting to note the gradual improvement in the hearing of the affected ear. At first the deafness was absolute, or very nearly so, and the patient suffered from violent tinnitus, but not from giddiness. Even the good ear felt rather "hazy" though the hearing remained normal (sympathetic affection ?). Later the hearing power returned to some extent; the lower tones were fairly well heard, but the upper tones were only appreciated as a squeak (C_{1024} and C_{2048}) or not heard at all (from C_{2048} upwards) when the noise apparatus was sounding in the good ear. The case demonstrates the great advantage of using this apparatus. Without it one got the impression that the patient could hear the upper tones by the diseased ear when the good ear was closed by the finger. As a matter of fact "finger-closure" of the good ear is not sufficient to shut out high tones such as C_{2048}, which are of great intensity and penetrating power. From the onset of the trouble the patient complained of a "stuffed-up" feeling in the ear—a condition Lermoyez mentions as obtaining in cases of "concussion" or "shell" deafness. It is a pity that the patient would not at first permit an examination of the vestibular apparatus by the caloric test, but there was no Rhombergism and no spontaneous nystagmus, and it is well known that the vestibular is much more resistant than the cochlear apparatus. This is attributed to its being much older from the point of view of comparative anatomy. It is doubtful if treatment does much good in these cases, though pilocarpine injections are strongly recommended by some writers. The patient refused to undergo this treatment, as her circumstances were such that she did not want to be laid up in bed even for the shortest period. Complete rest of body and mind, combined with time and patience, are of more importance than galvanic currents, pilocarpine, strychnine or other drugs.

FATTY TUMOUR OF THE HYPOPHARYNX OBSTRUCTING THE LARYNX.

By J. S. FRASER, F.R.C.S.

H. H., male, aged 76, was first seen on 29th September 1915. He stated that for two years he had had increasing difficulty in getting his breath, and had also noted an alteration in his voice. Eighteen months ago he had had an operation on his throat by indirect laryngoscopy, and had been easier for a time thereafter. The dyspnœa, however, had soon returned, and of late the patient had found that he had to lie at night on his left side in order to get breath. If he turned on his right side he began to choke. At the time of his visit the patient complained of an aching feeling in the left side of his throat and stated that of late he had had difficulty in swallowing, and occasional choking attacks due to fluids going the wrong way. For the last two months the dyspnœa had been much worse.

On examination one noted that the patient breathed in a very noisy manner, as if he were suffering from marked laryngeal obstruction, while his voice had a very guttural character. The nose, fauces, and oro-pharynx were quite normal, and there were no enlarged glands in the neck, but the patient had a lemon-yellow colour, and with the history of hoarseness, dyspnœa, and dysphagia one feared malignant disease of the larynx in a man of 76. Laryngoscopy, however, showed not a cancerous growth but a large, lobulated, yellowish-pink tumour, apparently growing from the left lateral wall of the pharynx and the left aryteno-epiglottic fold (Fig. 1). The tumour hung down into the upper aperture of the larynx and moved to a limited extent on respiration, being sucked further into the larynx during inspiration and blown out again during expiration.

The forefinger was introduced, and easily reached the upper surface of the growth, which felt extremely soft. Palpation, therefore, confirmed the opinion one had formed from inspection—namely, that the tumour was a fatty one.

10*th October* 1915.—*Operation.*—Morphia ($\frac{1}{4}$ gr.) and atropin ($\frac{1}{100}$ gr.) were given hypodermically at 9.30 A.M. At 10 A.M. the pharynx and larynx were sprayed with 10 per cent. cocain. Soon afterwards the patient was placed in the supine position (Fig. 3) on the operating table to which the suspension laryngoscopy apparatus (Fig. 4) had been attached. The patient's head was brought well beyond the edge of the table, and was allowed to hang down, being supported by an assistant. The tongue spatula was then fixed on to the suspension hook, and, after the patient had put out his tongue, introduced as far as the epiglottis. There was considerable difficulty in getting the gag to act well as the patient was quite edentulous. After this difficulty had been overcome, by placing a pad of cotton-wool beneath the tooth-piece of the instrument, the suspension hook was attached to the cross-bar, and the screws adjusted so as to obtain the best possible view of the hypopharynx and larynx. The ordinary standard lamp and forehead mirror provided the illumination. Cocain was again applied to the hypopharynx and upper aperture of the larynx. The tumour was then grasped with specially long forceps designed for removing foreign bodies from the œsophagus. Over this the loop of the cautery snare was passed so as to surround the tumour as near to its base of attachment as possible. (It was found that the growth had a much broader pedicle than had been supposed.) The main mass of the growth was removed by two applications of the cautery snare, though on each occasion it took about five minutes to burn through the tumour. It was now found that there was a small, slender, pedunculated growth arising from the posterior wall of the hypopharynx, and quite separate from the large tumour. This growth was easily removed with the cautery snare. Strong cutting forceps were next used to remove the stump of the original tumour, and finally the cautery was applied to stop all bleeding. The operation, which was only expected to last half an hour, extended to fully an hour, but the patient stood it remarkably well in spite of his advanced years.

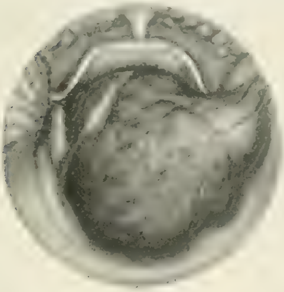


Fig. 1.—Fatty Tumour of the Left Lateral Wall of the Pharynx and Upper Aperture of the Larynx as seen by Indirect Laryngoscopy. The tumour occludes almost entirely the entrance to the larynx.

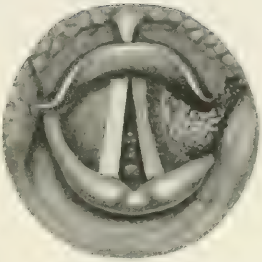


Fig. 2.—Larynx as seen by Indirect Laryngoscopy Ten Days after the Removal of the Growth. Note the raw surface on the false cord, aryepiplottic fold, and lateral wall of pharynx on the left side.

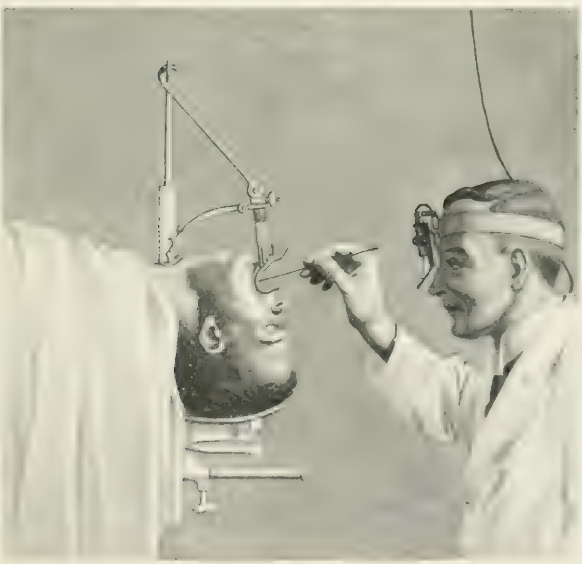


Fig. 3.—Suspension Laryngoscopy.

The tongue spatula has been inserted and adjusted, the suspension hook placed in position, and the mouth-gag opened. The counter-pressure apparatus has been applied to the larynx externally. The operator is seated and wears the Kirstein forehead light. Cocaine is being applied to the larynx under the guidance of direct vision.

Progress.—At 6 P.M. on the day of operation the pulse was 80 and the temperature normal. There had been no hæmorrhage or vomiting, but the patient complained greatly of sore throat. The patient was sitting up, and his breathing was much easier. The

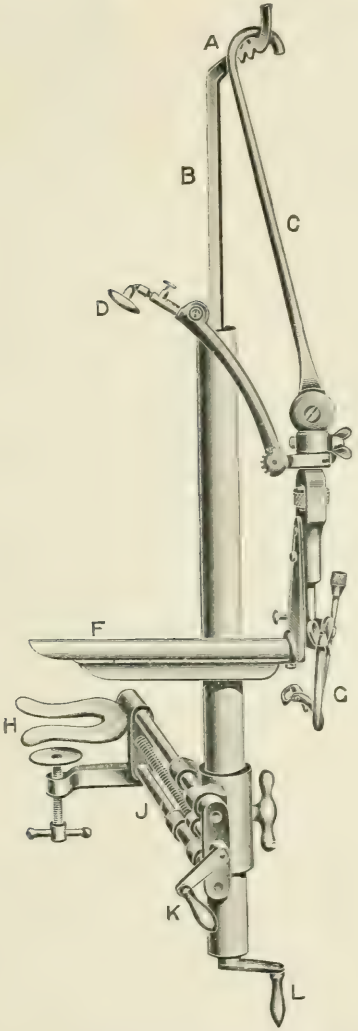


FIG. 4.—Apparatus for Suspension Laryngoscopy.

A, Cross-piece of gallows. B, Gallows can be raised or lowered by handle (L). C, Suspension hook. D, Counter-pressure lever, shown raised and shortened. When in position the anterior plate rests on the cricoid cartilage. E, Thumb-screw for adjusting gallows-hook and spatula. F, Spatula, which is gutter-shaped, with adjustable flanges on each side in order to keep the tongue from bulging. G, Mouth-gag. H, Clamp for fixing gallows to operating table. J, Back on which gallows is made to travel to and fro by means of handle (K). In the figure the rack is seen swung back at right angles to its general position when in use, which is parallel with the spatula.

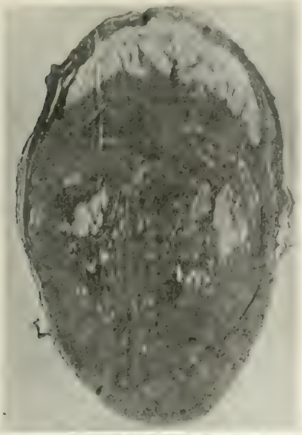
[We are obliged to Messrs John Wright & Sons, Bristol, for the loan of the above illustration (*Medical Annual*, 1915).]

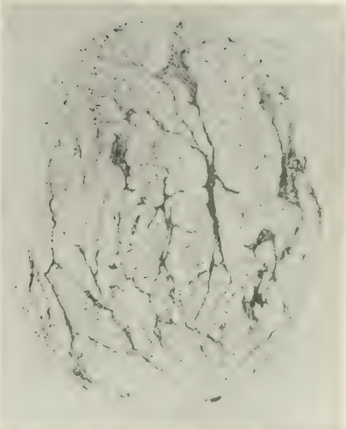
next day the patient's temperature rose to 99° F., but he had had a fairly good night, and was able to take beef-tea. On the following day the temperature rose to 100° F., and the patient stated that during the night he had been considerably bothered by phlegm. His dyspnœa had now entirely disappeared and his voice was only slightly thick. He complained somewhat of pain shooting up to the left ear. (This was evidently a referred pain from the pharynx, as the left ear was normal on examination.) Ten days after operation the patient was able to get out. He could swallow with very little difficulty and stated that he slept well. The laryngoscopic appearances at this date (20th October) are shown in Fig. 2.

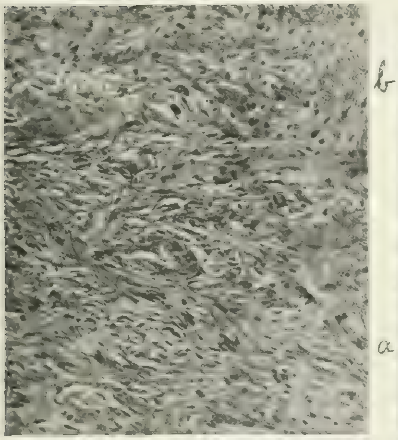
The writer is indebted to Dr. James Dawson for the following report on the tumour:—A transverse section of the tumour near its distal end (Fig. 5) shows it to be composed almost wholly of fibrous tissue. This has a lobular arrangement. Each lobule consists of well-formed collagen bundles, running longitudinally or irregularly, with comparatively few cells between the bundles (Fig. 7*a*). In certain more or less defined small areas there is a more open and more cellular structure; here the cells have well-defined branching processes and the intercellular tissue is more fibrillated (Fig. 7*b*). Other lobules show a distinct myxomatous tissue in which the cells are large, protoplasmic, and branching, and the fibrils are separated by a kind of œdema (Fig. 8). In such areas appear fat-cells isolated or in small groups (Fig. 9), and this change may continue till the myxomatous lobule has been replaced by a fat-lobule (Fig. 10). Throughout the tissue are small blood-vessels with distinct and well-formed walls. This portion of the tumour is surrounded by an epithelial capsule formed of three or four layers of stratified epithelial cells (Fig. 5), all of which have become very flattened by the pressure of the growing tumour.

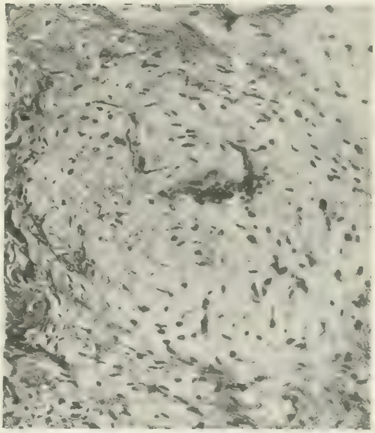
The proximal portion of the growth may be looked upon as a lipoma in which the fibrous septa are well developed (Fig. 6). The structure is that of ordinary fatty tissue; it consists of connective-tissue cells distended with fat, with the nucleus pushed to the periphery, and with a thin rim of protoplasm remaining around the fat-globule. Amongst these fat-cells are found myxomatous, branching, uninfiltrated cells; the blood-vessels are more numerous and have well-defined walls. The original epithelial capsule has become so thinned out that only débris of squamous epithelial cells can be recognised.

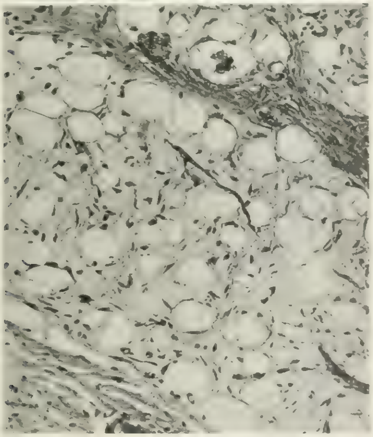
A study of different portions of the growth leaves the impres-











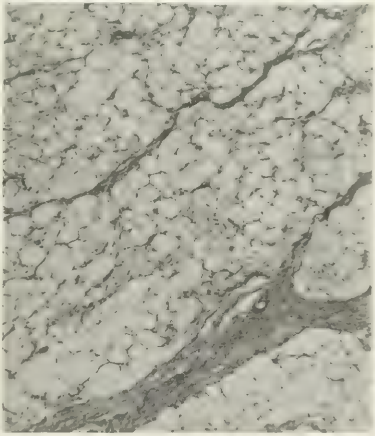


Fig. 5.—Transverse Section through Distal Portion of Growth, Showing the Fibrous Tissue, the Islets of Myxomatous Tissue, and the Lobules of Fatty Tissue. Note also the epithelial capsule. (Hæmatoxylin and eosin × 3 diam.)

Fig. 6.—Transverse Section through Proximal Portion, Showing its Lipomatous Structure with Septa of well-developed Fibrous Tissue. (Hæmatoxylin and eosin × 3 diam.)

Fig. 7.—Section to Show (*a*) the fully-formed Fibrous Tissue with small Cell Elements and Collagen Fibres; (*b*) a more open and more cellular structure, transition to Fig. 4. (Hæmatoxylin and eosin × 350 diam.)

Fig. 8.—Islet of Myxomatous Tissue with Central Vessel; Star-shaped Cells with branching processes. (Hæmatoxylin and eosin × 350 diam.)

Fig. 9.—Islet of Myxomatous Tissue in which the Myxoma Cells have been largely replaced by Fat Cells. (Hæmatoxylin and eosin × 350 diam.)

Fig. 10.—Lobule of Lipomatous Tissue with Septa of fully-formed Fibrous Tissue. (Hæmatoxylin and eosin × 150 diam.)

sion that here we are dealing with a fibroma which is becoming myxomatous, and this myxoma in turn is becoming lipomatous by a gradual distension of the branching cells with droplets of fat. The small isolated tumour consisted of fibrous tissue covered by squamous epithelium.

Remarks.—From the point of view of development the upper aperture of the larynx should be regarded as part of the pharynx, and for this reason the writer has described the case as one of tumour of the hypopharynx. Fatty tumours of this region are rare, though in 1889 M'Bride published in this *Journal* clinical notes of two cases of fatty tumour of the larynx which he had operated on within eighteen months. After a careful search of the literature M'Bride could only find records of three other cases. The ages of these five patients varied from 13 to 71 years. The tumours, if we may class them together, sprang from the region of the epiglottis, glosso-epiglottic fossæ, base of the tongue, ary-epiglottic fold, and pyriform fossa, much as in the present case. M'Bride calls attention to the slight symptoms produced by these large growths, and remarks that, unless removal be complete, rapid recurrence takes place. Such may be the case in the present instance, though the method of suspension laryngoscopy briefly described and illustrated above gave excellent access to the growth. The slight amount of hæmorrhage did not obscure the view as the blood ran down into the nose and nasopharynx, which in suspension laryngoscopy forms the lowest part of the upper respiratory tract.

The writer wishes to acknowledge a grant from the Carnegie Trust towards the expense of the illustrations.

A CASE OF CLEIDO-CRANIAL DYSOSTOSIS.

By DAVID M. GREIG, C.M., F.R.C.S.Ed.,
Senior Surgeon, Dundee Royal Infirmary.

I AM indebted to Professor Kynoch for the opportunity of examining this patient and for permission to publish the case, and to Dr. G. A. Pirie for the radiograms.

J. L., an unmarried woman aged 47, a weaver to trade, was referred to Professor Kynoch in February 1915, suffering from a uterine prolapse of 14 years' duration. She had never borne children and there was no apparent cause for the prolapse. There was some retroversion of the uterus. She had a degree of varicose veins in both lower limbs, a left inguinal hernia, and a small subcutaneous fibroma about an inch and half to the right of the anus. There was a slight deformity of the left elbow which she stated had followed a fracture in infancy, and the existing defect was in agreement with such a history.

She is well-nourished and developed, and the absence of the clavicles is not noticeable on inspection, though a slight forward inclination of the shoulders is present, causing a little flattening of the infraclavicular regions. The head is well formed but somewhat square, with a rather straight forehead and a flattened vertex and a slight prominence of the frontal eminences not incompatible with early rickets, but in the present instance rather due to a depression corresponding to the interfrontal suture than to any undue development of either frontal protuberance. There is marked freckling of the face, hands, and forearms. The nasal bridge is flattened and broader than usual, forming a bony triangle with the base at the naso-frontal suture. She has a slight postural kyphosis and a very slight dextro-concave dorsal scoliosis. She is edentulous. The palate is high, and presents an unusual median sulcus which is very distinct in the osseous part of the palate and broadens into a navicular fossa occupying the anterior half of the soft palate, but the groove does not extend backwards to the uvula, and it varies in depth and shape with muscular action. She has never been able to articulate quite well, and her voice has a nasal intonation. She is conscious of the defect and, in consequence, has acquired reticence to strangers. The ribs appear to be normal. The sternum is well formed, and its component parts appear in proper relation to each other. The ridge between the manubrium and the gladiolus is not unusually distinct—that is to say, the absence of the clavicles has not been followed by undue tilting or want of development of the manubrium sterni. The episternal notch is distinct and at the upper angles of the manubrium is a small piece representing the proximal end of each clavicle. The entire shaft of the clavicle is absent, but, corresponding to the outer extremity, there appears to be a small portion representing the distal end of the clavicle and forming an articulation with the acromion. The absence of the clavicles is very obvious in the accompanying radiogram. (Fig. 1). The sterno-mastoid muscles are quite well developed, but the sternal attachments are more, and the clavicular attachments less, defined than normal. She can voluntarily approximate the shoulders to the middle line in front to the extent shown in the photograph (Fig. 2), but one can approximate them for her until they are actually in contact beneath the chin. The scapulæ appear a little less than usual, and the want of development seems to be concentrated in the supraspinous fossæ which are small and shallow. The spine of each scapula is unusually distinct throughout its entire length.

It is curious how one deformity is frequently associated with other congenital defects, and here the absence of the clavicles is in conjunction with a left inguinal hernia and a prolapse of the

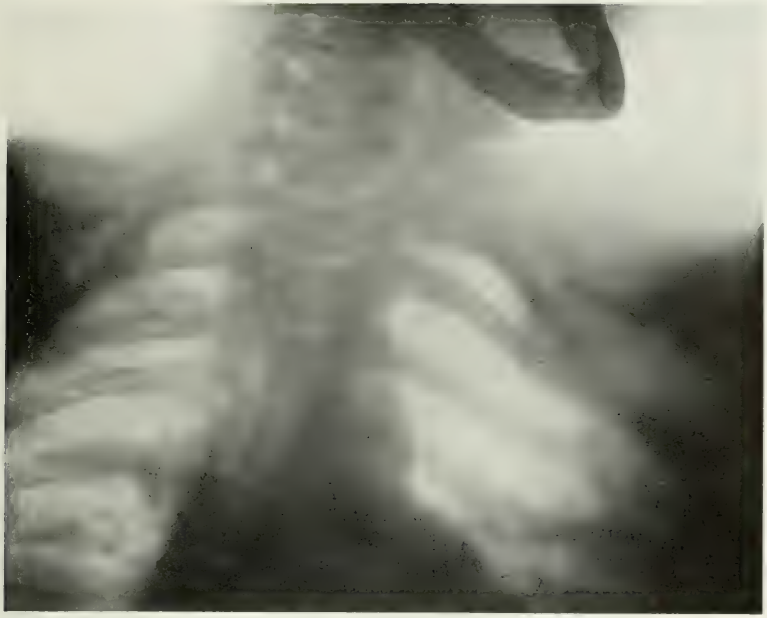


Fig. 1.

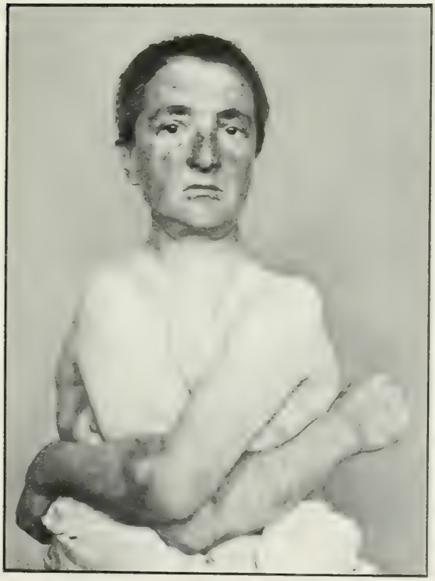


Fig. 2.
Cleido-cranial Dysostosis.

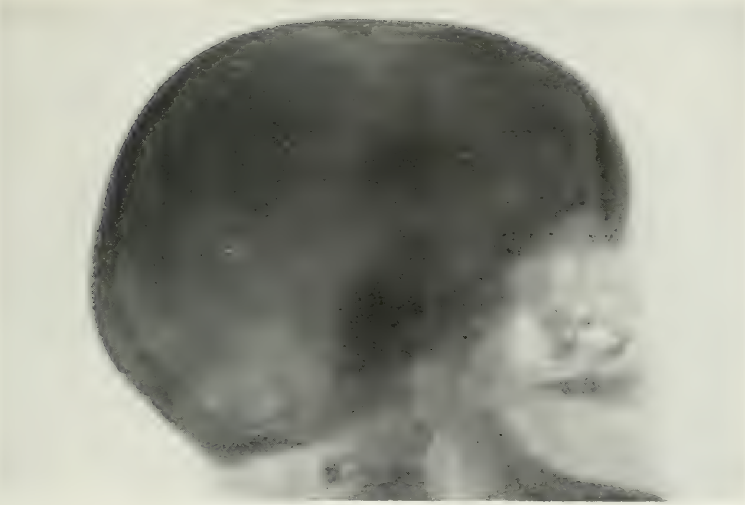


Fig. 3.

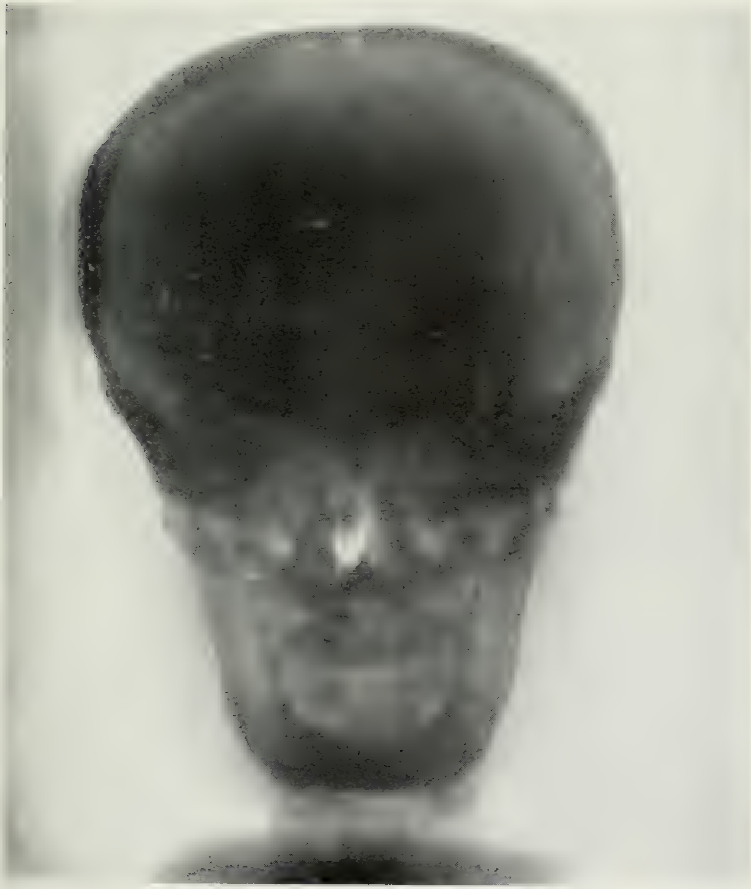


Fig. 4.

uterus probably due to developmental defects. It is common knowledge that congenital defects are often multiple, but there does not appear to be any relation between cleido-cranial dysostosis and either prolapse or hernia. The condition presented by the clavicles is the usual one in this deformity, and emphasises, as Keith points out, the double origin of the bone, where the extremities are developed from cartilage and the shaft from membrane. In this dysostosis it is only the membranous part which suffers, consequently a careful examination discloses the presence of bone at either extremity, completing the sterno-clavicular and the acromio-clavicular articulations.

I have retained the name cleido-cranial dysostosis, though the cranial affection is none too obvious in the above case. True it is that the bones of the cranium developed in membrane may not in adult condition present abnormality, and on this ground some writers are inclined to reject the name bestowed on the condition by Comby in 1904. It is not a local condition but one in which all bones developed in membrane may participate, and probably, at some time or other, do participate. Nevertheless, when adult life is reached and development completed, the bilateral affection of the clavicles is the most striking and obvious residuum. A radiogram of the head shows the flattening of the vertex and the unusual thinness of the bony vault of the cranium (Fig. 3). The contour of the head (Fig. 4) suggests rickets—a disease characterised by softening of the bones, but other evidence of rickets is wanting, while the flattening of the vertex, the vertical groove along the line of the interfrontal suture, and the thinning of the bones of the cranial vault all indicate delayed ossification. The peculiarity of the palate described may not have been a primary palatal developmental defect, but a secondary result of some cranial peculiarity of ossification and growth—the narrow or shallow posterior nares and the nasal intonation mere accompaniments of the altered naso-pharyngeal resonance chamber.

A CASE OF SO-CALLED "TETANISM."

By J. S. FOWLER.

A CERTAIN degree of general muscular hypertonicity is physiological in the newly-born infant, and persists during the first few weeks of life. This physiological hypertonus is liable to become exaggerated in various pathological conditions, such as malnutrition, diarrhœa, and congenital syphilis, and is occasionally so marked as to be the predominating symptom in the clinical picture. Although nothing is known as to the exact nature of this increased hypertonus, it is, clinically, a well-recognised condition and has been named "myotonia of infancy" by Hochsinger, and, more recently, by Sheffield,[1] "tetanism."

Practically, myotonia is of importance mainly in reference to diagnosis. When it is well marked it may bear some resemblance to spasmophilia (tetany), diplegia, or, as in the following case, to tetanus neonatorum.

Case.—W. B., aged three weeks, was sent into the Sick Children's Hospital on 17th January 1915 with the diagnosis of congenital syphilis. He was the fourth child, the others being healthy; was born after a normal labour, and was nursed at the breast for 14 days. Soon after birth he was noticed to have "cold in the head." He had a fit on the 12th day, and a rash appeared on the face on the 14th day. An umbilical hernia has been present since birth.

State on Admission.—Well developed, fairly-nourished infant, weighing 7 lbs. 14 ozs. The head and fontanelle are normal. The lips are markedly fissured, and there is a coppery papular rash round the mouth and on the buttocks. There is slight nasal discharge; the breathing is snuffling, and the cry hoarse.

The Thoracic and Abdominal Organs are normal. There is a fairly large umbilical hernia, and the umbilical wound is not healed but forms an ulcer, about the size of a halfpenny, surrounded by an inflamed zone of skin. On the skin near by is a smaller ulcer covered by a scab.

Nervous System and Muscles.—*While at rest* the infant is extremely rigid. He lies with the arms firmly flexed against the chest, and the hands tightly clenched. The back is not arched, nor the head drawn back, but the legs are extended and the toes curled in towards the soles (Fig. 1).

When he is moved in any way, as during examination, the spasm increases to a marked degree. It sometimes spreads to the facial muscles, causing clenching of the jaws and some pouting of the lips. The legs are more forcibly extended, and the toes splayed out fanwise; occasionally, slight twitching of the clenched hands and rigid arms occurs.

There is no opisthotonos: sucking is somewhat impeded by the cracks and excoriations of the lips, but does not produce trismus. *Reflexes:* knee and Achilles jerks, abdominal reflex, present; plantar reflex, extensor: sucking reflex ("mouth pouting") present. *Pupils:* equal, react normally: occasional slight internal strabismus of left eye.

Examination of the discharge from the umbilicus for the bacillus of tetanus was negative.

Progress.—The patient remained in hospital for twenty-four days, and

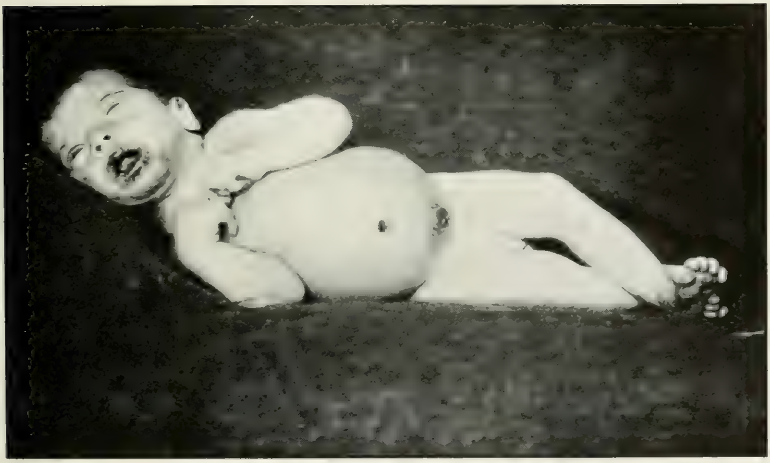


Fig. 1.

was discharged with the umbilical wound healed. The syphilitic rash cleared up under mercury. He took his feeds fairly well, but lost a little weight while in hospital. Slight bronchial catarrh developed.

The *hypertonicity* varied a good deal from day to day, but never entirely disappeared. It was, however, decidedly less marked at the time of his discharge than had been the case when he was admitted.

He did not thrive while in hospital, and is reported to have died from malnutrition several weeks after he went home.

Remarks.—The case was chiefly interesting from the diagnostic point of view. The infant was obviously syphilitic, but, in connection with the remarkable hypertonicity, tetanus neonatorum and diplegia had to be considered.

The association of spasm and a septic umbilical wound in a young infant suggested the former, but (1) the very slight amount of trismus (not enough to interfere with swallowing); (2) the absence of the characteristic pouting of the lips; (3) the absence of implication of the respiratory muscles; (4) the preponderating affection of the limbs; and (5) the chronic course of the disease, negatived this diagnosis. On the other hand, the gradual improvement in hospital and the very marked increase of spasm which resulted from any movement showed that the case was not one of ordinary diplegia.

The case illustrates fairly well some of the characteristic features of exaggerated hypertonus, myotonia, or "tetanism." (1) The hypertonicity (spasm) is remittent, but never altogether disappears; (2) movements cause a marked temporary increase of spasm; (3) with improvement in the general condition, the hypertonicity diminishes and ultimately disappears.

REFERENCE.—[1] Sheffield, *Arch. Ped.*, August 1910; *Arch. of Diagnosis*, January 1915. (With photograph of case.)

RECENT ADVANCES IN MEDICAL SCIENCE.

MEDICINE.

UNDER THE CHARGE OF

W. T. RITCHIE, M.D., EDWIN MATTHEW, M.D., J. D. COMRIE, M.D., AND A. GOODALL, M.D.

THE ESSENTIAL FACTORS IN THE DIAGNOSIS OF CHRONIC GASTRIC AND DUODENAL ULCERS.

EUSTERMAN (*Journ. Amer. Med. Assoc.*, 30th October 1915) reviews 2400 cases demonstrated by operation in the Mayo clinique.

A skilful anamnesis in the absence of extensive clinical observation or direct X-ray evidence of a lesion is still the most important factor in the differential diagnosis of lesions causing gastric disturbance.

In cases of ulcer, characteristic chronicity or remission of symptoms is readily apparent in over 80 per cent. Pyloric and duodenal ulcers in which complications are not far advanced invariably manifest periodic exacerbations. Seasonal exacerbations, especially in spring and autumn, appear in nearly 40 per cent. of all cases.

Nervous and physical fatigue, infection and exposure, dietetic indiscretions, toxic intestinal disturbances, etc., are prominent factors influencing recurrences. Between seizures complete relief from symptoms is the rule, although in ulcers situated well up along the lesser curvature remission rather than complete intermission may occur.

The greater number of these patients have had symptoms for many years, very few for less than one year, the average being twelve and a half. During the period of attack pain or distress, variable in character and intensity, is the common symptom in nearly all cases.

Of secondary diagnostic importance are the location, type, and area of radiation of the pain. The time of pain and method of its control are of prime importance. The complex of chronicity and periodicity of attacks in which pain or distress and the usual association of symptoms repeated uniformly day by day during the attack, and bearing a fairly definite relation to food intake and control, is of primary clinical importance in the diagnosis of 80 per cent. of cases of uncomplicated peptic ulcers. In the remaining 20 per cent. this complex may be irregular, atypical, or almost entirely absent. The symptoms may be confused by the co-existence of disease in other organs. This occurs in about 16 per cent. of all cases of ulcer. This group often taxes the resources of the clinician, but errors do not easily occur if the possibilities are constantly borne in mind, especially in cases (1) in which a perforative process or a painful spasm simulates hepatic colic; (2) in cases in which ulcers had become chronic and complicated by the time the first symptoms appeared; and (3) in cases where a large ulcer, hæmorrhage, cachexia, and perhaps a palpable inflammatory mass, suggest a malignant process.

Clinical differentiation between gastric and duodenal ulcer is extremely difficult and in most instances well-nigh impossible. With great regularity late pain and the nature of hæmorrhage in proved gastric ulcer may suggest duodenal ulcer.

On the other hand the early onset of pain in some cases of duodenal ulcer suggests a gastric lesion. In about 5 per cent. of all cases of benign ulcer coincident lesions of both stomach and duodenum are present.

Röntgen-ray examination is of inestimable value, and occasionally furnishes the first reliable evidence of the presence of ulcer, but it has its limitations. The degree of demonstrability of gastric ulcer is directly concerned with three factors—position, size, and depth. The direct sign of irregularity of the gastric contour (niche or accessory pocket) may be wanting in cases in which the ulcer is situated on the anterior wall, high up in the cardia, and when it involves the pyloric segment. Should it be shallow or slit-like it may not be successfully demonstrated. Indirect or auxiliary signs, however, in combination with clinical data, may be helpful in establishing a diagnosis. The strikingly frequent occurrence of bulb deformity or hyperperistalsis with residue in duodenal ulcer is worthy of note, both from the point of diagnosis and localisation. The continuous or intermittent presence of altered or fresh blood in the gastric contents, the absence of evidence pointing to gross motor disturbances, and the situation of pain and tenderness to the left of the middle line are strong presumptive evidence of gastric ulcer. Clinically, the general observation can be made that uncomplicated types of duodenal and pyloric ulcer are invariably well defined throughout their life-history. The longer the interval between taking of food and the onset of pain the lower is the ulcer, as a rule. The more prompt the onset of pain and the shorter its duration the higher is the ulcer. In ulcer of the fundus this may not be so defined as in duodenal or pyloric types, nor are the day-by-day symptoms so clear cut. In ulcers well above the pylorus the symptoms are likely to be continuous, or remissions rather than intervals of complete relief are likely to be noted. The pain is not so often relieved by food. Small amounts may give relief while increased amounts may cause distress. More care as to diet is necessary. If bleeding occurs hæmatemesis predominates. Vomiting is more frequent and gives relief even in the absence of obstruction. Soda relieves pain when food does not. Pain begins earlier, often disappearing before the next meal, in the absence of stasis or marked hypersecretion. Thus the food relief is minimised, but pain from one-half to two hours after food is the rule and is of diagnostic significance. Too much clinical significance cannot be placed on reliable evidence of hæmorrhage in the presence of other symptoms characteristic of ulcer. Hæmorrhage, however, occurs in only about 35 per cent. of all chronic gastric and duodenal ulcers. The association of hæmorrhage with the ulcer-complex makes for safe diagnosis of ulcer in 95 per cent. of all cases. In 5 per cent. of all ulcers there is a silent bleeding type in which blood is regularly found in the stools, although there is a more or less complete absence of pain, hyperacidity, and discomfort after food. Benign ulcer, unlike cancer, bleeds intermittently. Positive analysis of occult blood in the stool on limited examination was present in about 25 per cent. of the cases studied.

In those organic conditions which most frequently cloud the diagnosis—chronic cholecystitis and cholelithiasis, chronic appendicitis, etc., the greatest aid is obtained from the irregularity of symptoms during the period of attack. This irregularity is chiefly concerned with the time of onset of pain and the influence of food. Nothing follows in sequence day by day, in all probability because the stomach behaves properly unless irritated by the contiguous lesion, and this extrinsic lesion is irregular in its influence. Chronic catarrhal cholecystitis very perfectly and frequently simulates the ulcer-complex. The features of chronicity and attacks (of briefer duration, however) of pain, hyperacidity, and flatulence having some food relation, the absence of colic, icterus, and localising signs are not uncommon. In order to lessen diagnostic error, daily clinical observations, repeated gastric analyses under favourable circumstances, examination of the fæces, and the result of therapeutic tests may be necessary.

Test-meal analysis is essential to gastric diagnosis but has its limitations. In the absence of definite evidence of blood stasis, hypersecretion of the contents during fasting, cardiac obstruction, etc., the findings are of value in so far as they are correlated with the clinical and Röntgenological data. They constitute a link, often a decisive one, in the chain of evidence. The instances of normal or subnormal acid value in the presence of a peptic ulcer occur in about 20 per cent. of all cases. On the other hand, hyperacidity and hypersecretion are only too frequently associated with functional states, ptosis, and extra-gastric lesions. These conditions would soon lead to confusion if too much dependence were placed on a single or even a repeated gastric analysis. Again, on account of purely physical conditions, a considerable residue may be overlooked, but this may be overcome by the use of a lavage tube of proper consistency, calibration, and ample fenestration. Hyperacidity and hypersecretion occur in 60 per cent. of gastric ulcers, and in 75 per cent. of duodenal ulcers. The determination of gastric motility is of diagnostic importance, second only to secretory disturbance.

CHOLECYSTIC TOXÆMIA.

Babcock (*ibid.* 23rd October 1915) divides gall-bladder infections into four types:—

1. Portal infection, in which bacteria enter the portal circulation from the alimentary tract, escape the bactericidal action of the liver, and, passing out with the bile, invade the gall-bladder. This may explain the relationship between appendicitis and other intestinal affections and gall-bladder disease.

2. Ascending biliary infection, in which bacteria pass from the ampulla of Vater through the common and cystic ducts and enter the gall-bladder.

3. Hæmatogenous infection. The cholecystitis following pneumonia in young children and the infection of the gall-bladder in typhoid probably arise in this way.

4. Contiguity infection, in which the gall-bladder is involved by the spread of infection from adjacent organs. This is a relatively rare form.

Infections of the gall-bladder are common. Next to appendicitis, cholecystitis is the most frequent of all the chronic intra-abdominal infections. In some classes of people, notably obese middle-aged multiparas, it is more frequent than appendicitis. It is the second great cause of chronic indigestion. Inflammation of the gall-bladder often develops during the first and second decades, but as the local symptoms are unobtrusive, the condition usually escapes recognition. After middle-age, as the local symptoms become more predominant, the diagnosis of gall-bladder disease is made. Thus we have been accustomed to consider it a disease of middle or advanced life.

Infections of the gall-bladder are exceedingly chronic. Symptomatically, chronic cholecystitis may be divided into three stages. The initial stage is characterised by indigestion and toxæmia, but local symptoms are absent. This may continue for 15 to 20 years before the development of the second stage. The second stage is characterised by the movement of calculi or by recurrent attacks of acute inflammation. Stones cause paroxysms of pain, usually by obstructing the outlet of the gall-bladder. The attacks are violent, often follow indiscretions of diet, usually require an opiate, frequently occur at night, and last but a few hours.

Acute recurrent attacks, when no calculi are present, are less violent, but last several days and begin and end less abruptly. On exposure, these gall-bladders are often considered to be normal, the operator finding no stones or marked evidences of inflammation. The third stage is characterised by acute and dangerous complications, such as empyema or gangrene of the gall-bladder, obstruction of the common bile duct, acute pancreatitis, rupture of the gall-bladder, peritonitis or intestinal obstruction from stone. The occurrence of the third stage of cholecystitis is a reproach to medical art, and indicates a procrastination in the effective treatment of about 20 years.

The evidence of cholecystitis in the first stage is not found in the physical examination of the upper right quadrant of the abdomen, but is to be determined by deductive reasoning. The history of the patient usually reveals a cause of infection which has a relationship to the development of certain secondary infectious processes which experience has shown frequently to express cholecystitis. These processes set up the following symptoms:—

(*a*) Digestive. Fulness and distress after eating, bitter eructations, and, less commonly, vomiting. There is a constant foul taste in the mouth. The dyspepsia seems to be specially related to certain articles of diet. Attacks are relieved by fasting, by alkalies, and by salines or calomel.

As contrasted with gastric or duodenal ulcer, an attack of gall-stones lasts a few hours, is most abrupt and severe; an attack of acute cholecystitis lasts a few days, and is less severe; while an ulcer attack usually lasts for several weeks, and is the least severe. Between the paroxysms from stone or acute cholecystitis, which may be weeks or months apart, the patient usually has a greater degree of dyspepsia than is found between the exacerbations of ulcer. In ulcer, feeding may give temporary relief, while distress accompanies an empty stomach. In cholecystitis and stone, food exacerbates and vomiting relieves pain.

(*b*) Intestinal symptoms are vague and often indicative of toxæmia.

(*c*) Peritoneal symptoms result from acute inflammation or secondary adhesions. Cholecystitis is frequently mistaken for appendicitis.

(*d*) Subacute arthritic symptoms and chronic changes of the type of arthritis deformans are not uncommon.

(*e*) Cardiovascular changes, fever, headache, fever and eye symptoms are not infrequently noted. The remedy for the condition is believed to be surgical. External biliary drainage is undesirable, and early cholecystectomy is the operation of choice. A. G.

SURGERY.

UNDER THE CHARGE OF

J. W. STRUTHERS, F.R.C.S., AND D. P. D. WILKIE, F.R.C.S.

"Delayed" Tetanus.

Bérard and Lumière have had the opportunity of studying more than forty cases of tetanus since the outbreak of the present war, and in the *Lyon Chirurgical* (No. 4, tome xii.) they publish their observations on "delayed" tetanus (*le tétanos tardif*), on the clinical aspects of tetanus modified by preventive inoculation of antitoxin, and on the use of persulphate of soda in treating the disease. They state that while the incidence of tetanus has very markedly diminished since preventive inoculation has been generally used, cases still crop up. In particular, cases are seen which develop at intervals varying from two weeks to three months after inoculation, and to these they have applied the name *tétanos tardif*. In most of them the symptoms have appeared a few days after surgical intervention, which has been carried out long after the infliction of the wounds on the battlefield, and the observers believe that in such cases a dormant infection has been stirred up by the operations carried out. This theory is not new, but the cases cited afford very strong evidence of the view, and their occurrence can hardly be explained in any other way. For example, a soldier was wounded on 29th September, the wound cicatrised well but a foreign body remained in the tissues and on 29th December it was removed by operation. Six days later tetanus developed and progressed rapidly to a fatal issue. Other similar cases are cited, and in 12 out of 41 cases the authors attributed the outbreak of the disease to the stirring up of a dormant infection by a surgical operation. They review the possibilities of fresh infection having been carried in at the operations performed, and conclude, with apparently good reason, that this could not explain the phenomena observed. The importance of their observations is obvious, inasmuch as they bring out clearly the necessity of giving renewed injections of tetanus antitoxin before undertaking operation at a long interval after a patient has been wounded.

In treating cases which developed after preventive inoculation had been carried out, Bérard and Lumière found that they presented some unusual features. The symptoms were those of persistent contractures, which developed very slowly and insidiously, and in some cases were localised to the injured limb. In general, trismus was incomplete and stiffness in the neck was slight. There was no fever, and the exaggeration of reflexes, profuse sweating, and epileptoid tremor were less marked than usual. A notable feature was the persistent progressive contracture of the abdominal muscles. Clonic spasms were absent or very slight. Although slow in their development, and at first sight mild in character, such cases often progressed to a fatal issue, tonic spasm of the respiratory muscles causing asphyxia.

For many years Lumière has studied the treatment of tetanus by various means and has found that the alkaline persulphates are most efficacious in neutralising the toxins produced. The treatment which he now recommends is the injection, once or twice a day, according to the gravity of the case, of 20 c.c. of a 5 per cent. solution of pure neutral persulphate of soda into a vein. The injections may be continued for one or two weeks, but care must be taken to use fresh solution, for, if kept for more than a few days, the soda solutions decompose. The salt is best kept in small quantity in glass ampoules and dissolved in cold distilled water shortly before use. The injections sometimes cause a transient nausea, but should not cause any other reaction. They subdue the clonic spasms and ameliorate the patient's condition markedly, although they do not abolish tonic contracture in the muscles.

No mention is made of the use of magnesium sulphate as recommended by Kocher, but the action of the two salts seems to be similar.

TRANSFUSION OF BLOOD.

The elaborate technique regarded as necessary for the proper carrying out of blood transfusion by surgeons who have recently recommended that measure has rather militated against its general use, and it is with interest that we read of two simple methods which can be carried out without difficulty and apparently with complete success. The first is described by Percy (*Surg., Gynec., and Obstet.*, September 1915). He uses a glass tube, 4 cm. in diameter, drawn out at one end into a cannula which can be readily inserted into a vein, and at the other end into a tube 1 cm. in diameter to which a rubber tube is attached. This rubber tube ends in a glass T-piece, to one limb of which a rubber bulb is attached to aid in injecting the blood, while a tube with a mouthpiece is attached to the other limb of the T for exerting suction in withdrawing blood. The glass tube is easily made and should hold about 600 c.c. It is prepared for use by filling it with 2 ozs. of melted paraffin and sterilising it in a steam steriliser. While cooling takes place the paraffin is made to distribute itself over the inside of the tube by suitable manipulation. In carrying out the transfusion the blood is aspirated from an exposed vein of the donor and immediately injected into an exposed vein of the recipient, and in order to keep the blood from all contact with air, 2 ozs. of liquid paraffin may be aspirated into the tube before the blood is withdrawn. The paraffin floats on the top of the blood and keeps it from all possible contamination. Percy has done fifty-four transfusions by this method with perfect success as regards the technique of the operation.

The chief risk in doing transfusion appears to be that the donor's blood may cause hæmolysis of the recipient's, with serious results. Even in cases where a preliminary test has been done with small quantities of the donor's and recipient's blood, *in vitro*, and no hæmolysis has occurred, hæmolysis has, nevertheless, followed the transfusion itself. If this awkward result is to be avoided, or its evil results minimised, a preliminary transfusion of only 20 c.c. of blood should be done, and the result carefully watched. The symptoms following hæmolysis in three of Percy's cases were the immediate onset of chills and vomiting, the appearance of a peculiar flush over the face and body, profuse sweating, and great respiratory distress. The chills and vomiting persisted for an hour, and the vomiting alone persisted for days. Jaundice appeared in 6 hours, and there was suppression of urine in one case, hæmaturia in another, for some time after the transfusion. Two cases terminated fatally, and in the third recovery took place. If no reaction of any kind follows the transfusion of 20 c.c. of blood, it may be presumed that a large quantity may be introduced without risk. Percy has treated all varieties of primary and secondary anæmias with transfusion, and refers in particular to six cases of pernicious anæmia in which he has combined transfusion with splenectomy with a successful result. He maintains that transfusion alone will not effect a cure in this condition, but that if it is combined with removal of the spleen cure may follow.

The second method of blood transfusion is even simpler than that referred to above, and is described by Lewisohn (*Amer. Journ. of Surg.*, October 1915). He uses a 20 c.c. record syringe, two cannulæ with short pieces of rubber tubing attached, and an ether spray. A cannula is tied into a vein of donor and recipient respectively, and blood withdrawn from the donor and injected into the recipient without any further elaboration, except that the barrel of the syringe must be kept cool by spraying it with ether all the time. This is necessary to prevent the piston sticking and clotting taking place. Lewisohn has transfused as much as 250 c.c. of blood in this way, and was first induced to use it by the break-down of a more elaborate apparatus which he had. The method is so simple that it hardly requires description, but reference is made to it in order to call attention to the fact that it seems to work quite well. If it does not render other more cumbrous methods useless, it at any rate shows that, in an emergency, blood may be transfused with very simple apparatus and without experience of any elaborate technique.

Intestinal Obstruction after Posterior Retro-Colic Gastro-Enterostomy.

Moschowitz and Wilensky (*Surg., Gynec., and Obstet.*, September 1915) describe a rare form of obstruction after gastro-enterostomy, and refer to seven other published cases. They point out that after the completion of a posterior gastro-enterostomy, done in the usual way, the afferent loop of jejunum is attached at two points—the duodeno-jejunal junction and the point of fixation of the jejunum to the stomach. This attachment creates an artificial foramen with the following boundaries:—posteriorly, the peritoneum over the vertebral column; superiorly, the inferior layer of the meso-colon with the gastro-jejunal anastomosis; and below and in front, the afferent loop of jejunum. However short this loop may be, a foramen must always be created by the usual method of operating, through which the small intestine may slip in varying amount. In the case reported nearly the whole length of the small intestine had passed through the foramen, and obstruction resulted. The patient died. In three of the seven other cases quoted death occurred. Moschowitz and Wilensky point out that in many cases the foramen is large enough to admit two coils of intestine readily without serious constriction, and they suggest that in some cases a hernia may occur, followed by spontaneous reduction, accounting for symptoms of partial obstruction which subside or apparently yield to treatment. In order to render this complication impossible, they suggest that, as a routine measure, the afferent loop of jejunum be stitched to the meso-colon in such a manner as to completely obliterate the artificial foramen. This is easily done without exercising traction on the jejunum, and may even help to minimise the risk of vicious circle occurring. The paper is illustrated by two figures which show clearly the points made in advocating this little addition to the operation. J. W. S.

OBSTETRICS AND GYNECOLOGY.

UNDER THE CHARGE OF

A. H. F. BARBOUR, M.D., AND J. W. BALLANTYNE, M.D.

Glycuronuria in Pregnancy.

M. R. Jean (*Arch. mens. d'obstét. et de gynéc.*, October 1915, ann. iv. No. 10, p. 383), in view of the growing importance of clinical researches on the presence of glycuronic acid ($C_6H_{10}O_7$) in the urine, has investigated glycuronuria in pregnancy. It will be remembered that glycuronic acid is a derivative of glucose, found constantly in the urine of a healthy individual on normal diet. It increases in amount when more food is taken; and it diminishes when vegetarianism is practised, under a milk diet, and in inanition. In the last-named cases, however, the giving of half a gramme of camphor causes the reappearance of the glycuronic acid in the urine in its usual quantity, or even in excess. It is formed in the liver, and its diminution in, or absence from, the urine enables the observer to estimate the functional activity of that organ, and to diagnose between certain hepatic maladies, such as Laennec's cirrhosis, jaundice, etc. Jean describes the technic he has employed in his researches, which is that of Tollens and Rorive, improved by Grimbert and Bernier (naphtho-resorcin, hydrochloric acid, and ether). He has tested the urine in this way in twenty cases of normal and in an equal number of abnormal pregnancies. At all times in a healthy pregnancy he has always discovered a normal glycuronuria, and this clinical fact does not surprise him, for he regards pregnancy as a physiological phenomenon On the other hand, in morbid gestations characterised by albuminuria with œdema or by marked digestive troubles, the glycuronuria was decreased, and its diminution was in proportion to the severity of the pathological symptoms. In certain cases he was able to note a real functional inadequacy of the liver, which at the time of labour gave rise to serious complications. Dr. Jean is of opinion that glycuronic acid ought to be added to albumen and sugar as one of the substances always to be tested for in the urine of the pregnant woman; for its amount enables the obstetrician to determine the functional state of the liver, it gives valuable aids in prognosis, and it allows him to foretell, and perhaps to prevent, the occurrence of pregnancy-hepatic troubles.

Radium-therapy in Cancer of the Uterus.

Mme. Fabre describes ten cases of cancer of the cervix uteri in which radium-therapy was employed, and she reaches certain conclusions regarding the employment of this remedy in malignancy (*Ann. de gynéc. et d'obstét.*, September-October 1915, 2 s. vol. xi. p. 620). She prefaces her conclusions with the depressing fact that among the cancer cases which come to the physician or surgeon, a quarter only can be usefully treated by operation. Radium, therefore, finds a very large sphere of usefulness in these unhappy inoperable patients who can obtain no relief from either medicine or surgery. She would not go so far as to say with Bumm and Döderlein that one ought, in a case of cancer which is clearly operable, to use radium in place of operation; but she thinks the limits of radium-therapy should be considerably widened. Inoperable cases and recurrences after operation ought always to be treated exclusively with radium, the surgeon's part being quite secondary and insufficient. In the case of cancers just at the limit of operability, the part played by radium-therapy should be preparatory; by it the neoplasm can be rendered anæmic, dry, and more easily operable. Cancers which can be extirpated belong solely to the domain of surgery; but even in them radium may play an important part, viz. that of preventing recurrence and of completing the surgical procedure.

Dr. P. Degrais (*Ann. de gynéc. et d'obstét.*, 1915, 2 s. vol. xi. p. 609) comes to somewhat similar conclusions regarding radium-therapy and uterine malignancy. In order to prevent confusion between radium-therapy in which radium is the active agent, and radio-therapy in which the X-rays are at work, he would call the former *Curietherapy* and the latter *Rontgentherapy*. He would find for radium an important place alongside of surgery in the crusade against cancer. In the cases in which surgery is useless radium plays a part justly termed unique. For such desperate cases he believes it has already been beneficial in a large number. When one is fighting a malady so formidable as cancer one must not put aside a method simply because it is not always successful; indeed, if one were to do that, surgery itself, notwithstanding its brilliant results, would require to be condemned. Radium has given the medical man a therapeutic agent capable of giving satisfactory results in patients whom he was previously absolutely unable to benefit. Radium awaits the coming of a better means, ready to yield its place to an agent capable of meeting the general disease and not simply the local manifestation.

PITUITRIN IN PREGNANCY AND LABOUR.

Dr. Reginald Johnson (*Dublin Journ. Med. Science*, October 1915, 3 s. No. 526, p. 241) has made a special study upon the effect of pituitrin during pregnancy and labour in the case of European women resident in the tropics, and after giving details of 16 cases he reaches the following conclusions:—It should be added that where it was possible he instructed his patients to have a hot sitz bath for about a quarter of an hour every evening during the last three months of pregnancy, and to use pure olive oil as an inunction for the perineum and surroundings. He also removed all meat from their diet for the last four months of gestation. He thinks these procedures aided the pituitrin in its effects. The conclusions are as follow:—The child must lie in the long axis of the uterus and present, preferably, by the head. There must be no pelvic contraction beyond a very slight amount, and no obstruction of any kind to labour. The rectum and bladder must be empty in every case, and the os uteri must be soft and easily dilatable. The dose of the pituitrin should be 1 c.c., and not more, save in cases of inertia in multiparous women. It should not be given more frequently than once an hour, and never more than 5 c.c. in any one case. It is best given by hypodermic injection into the buttocks. The best time to get the full effect of the drug is at the end of the first stage, the membranes being still unruptured. The drug has more effect at the full term than at any other period in pregnancy. Dr. Johnson is also of opinion that it is well to give a routine dose of 1 c.c. to every case which fulfils the conditions necessary for the use of the drug because of the aid got from it in the detachment of the placenta. The perineum, however, must be especially guarded, for the pains caused by the pituitrin are of great expulsive force. Chloroform, he thinks, diminishes the intensity of the pains, and if pushed causes their disappearance. The milk-increasing power of pituitrin and its use for its peristaltic and diuretic action, which have been claimed by some authorities, do not apparently apply to Europeans in the tropics. Large doses frequently repeated seem to have a slight toxic effect on the mother and child. A properly standardised extract ought always to be used. Dr. Johnson's observations were presented in the form of a thesis for the Degree of Doctor of Medicine in the University of Dublin in June 1915.

REAPPEARANCE OF MENSTRUATION AFTER CHILDBIRTH.

The first article in the October number of the *American Journal of Obstetrics* (October 1915, vol. lxxii. p. 577) deals with the reappearance of menstruation after childbirth, and is founded on interesting statistics collected by the author, Professor Hugo Ehrenfest of St. Louis. The histories of 209 patients, detailing 309 births, are used to found conclusions on, and the bearing of the figures thus obtained on current theories concerning the cessation of menstruation during lactation is discussed. In over 50 per cent. (51·3 per cent.) of all lactating women menstruation reappeared within twelve weeks after delivery; and in over 80 per cent. of all lactations the first menstruation appeared before the cessation of lactation. Further, in primiparous women the percentage of those who began to menstruate before the child was weaned was still larger. The percentage (81·3 per cent.) given by Ehrenfest is higher than that furnished by other observers (*e.g.* Heil, who gives 62·5, whilst others give still lower percentages), but it is regarded by the author as fairly well representing the actual conditions for

American women of average health. Taking Ludwig Fränkel's theory that lactation exerts a debilitating effect which finds its expression in cessation of ovulation (*i.e.* amenorrhœa), Ehrenfest tests the validity of the supposition by his statistics. He finds support and confirmation in the facts that the healthy and strong woman is likely to menstruate early, while the generally weak or only temporarily weakened woman, as a rule, remains amenorrhœic longer, and that lactation evidently forms one of the weakening influences, because in the woman who nurses a larger child the reappearance of menstruation is markedly delayed. At the same time other factors may play a part, and there is evidence that a retro-deviation of the uterus has an apparent influence in causing an early return of the menstrual function; but it is not thought, for reasons fully stated in the article, that this militates against Fränkel's theory of lactation-amenorrhœa. To sum up: a debilitating influence exerted immediately by labour, and later by the loss of body fluids during lactation with rare exceptions temporarily arrests ovulation. As soon as the disturbed equilibrium is restored the ovary resumes its function of ovulation, and the first corpus luteum sends its specific hormone to the endometrium. The response of the latter depends probably to a certain extent upon the anatomical condition of the uterus: if normal, a typical menstrual flow ensues; if subinvoluted, or for other reasons hyperæmic (retroflexed), the reaction may be unusually strong; on the other hand, if the uterus is in an atrophic condition, it may require the stimulations from more than one ovulation until it becomes anatomically restored to the degree of resuming its function. As a rule, menstruation continues practically with regularity during lactation when once re-established. The debilitating effect of lactation is obviously dependent upon the general condition of the woman. Therefore, the disturbance in the equilibrium of body fluids usually ends sooner and menstruation reappears earlier in the strong and healthy woman. For the same reason the amenorrhœic state in general will last longer in the sick or weak woman, in the primigravida, whose labour as a rule is longer and more exhausting, and in the woman suckling a large child. But in the majority of women the equilibrium is regained before they have actually ceased to nurse their children, and, therefore, in the majority of instances menstruation reappears before the function of lactation is ended.

J. W. B.

LARYNGOLOGY, OTOLOGY, AND RHINOLOGY.

UNDER THE CHARGE OF

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Recent Extensions of Rhinology and Otology.

I. *The Intranasal Treatment of Lachrymal Disease.*

According to Paterson (*Journ. Laryngol.*, vol. xxix. p. 169), the part of the lachrymal apparatus concerned with the removal of the tears consists of the upper and lower canaliculi, the tear sac, and the tear duct. The canaliculi generally unite before opening into the sac, which lies in the lachrymal fossa. The anterior half of this fossa is formed by the ascending process of the superior maxilla, and the posterior half by the lachrymal bone. On its outer aspect the sac has no bony covering, and hence it is possible to compress it from the outside, a point of importance in the intranasal operation. The sac opens into the membranous tear duct, which terminates in the inferior nasal meatus. Anterior ethmoidal cells may abut on the median aspect of the lachrymal fossa, while the infundibulum of the frontal sinus occasionally comes so far down as to lie close to the sac. The anterior angle of the maxillary antrum is in close relation to the outer aspect of the tear duct.

Lachrymal Affections and Nasal Disease.—(1) A hypertrophied inferior turbinal may press on the outlet of the duct. Polypi, cysts, and septal irregularities may also interfere with drainage. (2) Inflammatory infections of the nose may extend to the lachrymal passage, *e.g.* purulent and atrophic rhinitis or ethmoidal suppuration. (3) Specific processes may spread from the nose up the duct, *e.g.* tubercle and lupus. Kuhnt says that affections of the tear passages are in 94 per cent. of cases of nasal origin, while Rhese believes that the anterior ethmoidal cells play a prominent part in the genesis of tear-sac suppuration, as they narrow the lumen at the point where the sac passes into the duct and produce stagnation of secretion. Any operative procedure to be of service must deal with the sac above this point.

Treatment of Lachrymal Affections—(a) *External Methods.*—These include slitting the canaliculus and passing Bowman's probes, the insertion of a permanent style into the duct, extirpation of the sac, and finally the procedure devised by Toti, an Italian rhinologist, who in 1904 introduced dacryocystorhinostomy. This operation is carried out by a curved incision around the inner canthus, detaching the periosteum from the lachrymal fossa and displacing it forwards and outwards with the enclosed tear sac. A wide communication with the nasal cavity is then made through the bony wall. The posterior wall of the sac is excised and the neighbouring part of the nasal mucous membrane resected. The adjacent edges of the openings in the sac and nasal mucosa are then united, and the parts replaced. It is essentially an establishment of nasal drainage by external operation, but is very difficult to carry out where there is an external phlegmon. Further, it leaves a scar on the face.

(b) *Intranasal Treatment.*—In 1912 West, Polyak, and Halle appear to have devised "intranasal dacryocystostomy" independently of one another. The operation may be carried out under local anæsthesia by applying cocaine and adrenalin to the region around and in front of the anterior end of the middle turbinate. Hanger (*Laryngoscope*, 1915, p. 28) injects into the sac a few drops of 20 per cent. cocaine and adrenalin āā. (The abstractor, in one case which was referred to him by Dr. W. G. Sym, obtained good local anæsthesia by injecting 0·5 per cent. cocaine with adrenalin under the nasal mucous membrane of the lateral nasal wall, just in front of the anterior end of the middle turbinal). The position of the sac in relation to the nasal cavity may be obtained by laying a probe outside on the cheek with its point over the inner canthus, measuring its distance from the nasal entrance and taking this for the inside measurement. The middle turbinal may overlap the sac and may therefore require to be dealt with. In order to obtain more room if the nose be narrow, West begins the operation by turning down a quadrilateral flap of mucous membrane in front of the prominence over the sac, while Paterson has found that in order to gain space he had to perform submucous resection of the septum in several cases. The mucous membrane over the torus lachrymalis is now removed, exposing the bony wall of the sac. Not infrequently an anterior ethmoidal cell has to be opened up and removed *en route* for the sac. By means of a long gouge, slightly curved back at the tip, the anterior half of the fossa lachrymalis is chiselled away, the thinner lachrymal bone behind being removed by a slender bone forceps or fine conchotome. The inner or nasal sac wall being fully exposed, it is possible by pressure on the sac externally over the inner canthus to make it bulge internally. The inner wall of the sac is now seized with fine-toothed forceps, pulled inwards, and part of it excised by a long, thin, straight bistoury. In this way a large window is established and the contents of the sac flow out. A lachrymal syringe is inserted through the punctum and the cavity washed out. The mucous flap (if found necessary) is now replaced and retained in position by packing. The after treatment merely consists in washing through the canaliculus with warm lotion.

Hanger (*Laryngoscope*, 1915, p. 23) performs a more extensive operation—a modification of one devised by Yankauer. Hanger's operation may be summarised as follows:—A few drops of equal parts of a 20 per cent. solution of cocaine and adrenalin (1 to 1000) are injected into the lachrymal sac. A small lachrymal probe coated with cocaine powder is now passed into the sac and the cocaine worked down into the nasal duct. In a few minutes the canal is anæsthetised, so that larger and larger probes can be passed into the nose. Theobald's No. 13 is now left *in situ*. The inferior turbinal and the region of the nasal duct are then anæsthetised, special care being given to the under surface of the inferior turbinal. The anterior third of the turbinal is now removed, exposing the lower end of the lachrymal probe. It may now be necessary to chisel away the lower anterior part of the lachrymonasal duct, but in many cases, even without this procedure, it is possible on slowly withdrawing the lachrymal probe to introduce the male blade of the special punch forceps into the canal, and so to bite away the inner wall up to a point beyond the stricture. The duct is thus converted into an open gutter, which can be extended into the sac if necessary. It is best to pack the nose for twenty-four hours and to irrigate the lachrymal sac for a few days. Drainage of tears should be perfect in a week's time or less.

II. *The Trans-nasal and Trans-sphenoidal Route to Pituitary Tumours.*

To enter into the symptomatology and diagnosis of pituitary tumours would take too long, and would not be suitable for an oto-laryngological extract, because affections of the pituitary body come under the notice, not of the oto-laryngologist but of the ophthalmologist or neurologist. Further, it is only necessary to mention the methods of operating on pituitary tumours devised by general surgeons, such as the buccal or pharyngeal route and the subtemporal route. This latter is still the best for extra-cellar, *i.e.* interpeduncular growths. The nasal or trans-sphenoidal methods are divided into three groups:—(1) *The superior nasal route*, in which the external nose is temporarily turned downwards or to one side, and the middle turbinals and most of the nasal septum permanently removed (Schloffer, Eiselsberg, and Kocher). These methods of operating leave objectionable after-effects in the nose. (2) *Sublabial incision combined with submucous resection of the nasal septum* (Halsted and Cushing, *The Pituitary Body and its Disorders*, Philadelphia, 1912). (3) *The intranasal submucous resection of the nasal septum* under local anæsthesia (Otto Hirsch). It is with this last method that we are principally concerned.

Otto J. Stein of Chicago records the case of a female, aged 35 years (*Laryngoscope*, 1915, p. 159). Menstruation began at 13 years and ceased at 23. Three years before the vision of the left eye became reduced, and for the last year this had been much worse. Examination of the nervous system showed no focal symptoms of paralysis, but the Wernicke pupil reaction was present. The right eye showed choked disc, but the vision equalled 20/20. The left disc was pale and flat, the nerve head atrophic, and vision reduced to light perception. The patient complained of violent bi-temporal headaches and dizziness, and had four or five attacks of vertigo daily. The patient was a very large woman and weighed 230 pounds, but she was not acromegalic, and the obesity was of the infantile type seen in hypopituitarism. She was sexually impotent. Knee jerks reduced. X-ray showed conspicuous involvement of the sella turcica.

Operation.—A hypodermic of scopolamine ($\frac{1}{150}$ gr.) and morphia ($\frac{1}{6}$ gr.) was given and repeated in one hour; 1 c.c. of pituitrin was also injected before operation. The nasal septum and right middle turbinal were then carefully anæsthetised with a cotton applicator, moistened in adrenalin solution and coated with cocaine (the so-called "cocaine adrenalin mud"). A rapid submucous resection of the septum was now performed back to the rostrum of the sphenoid. The right middle turbinal was then entirely removed. These two procedures gave amply sufficient room. Now, by means of Killian's extra long bi-valve nasal speculum, the septal flaps were held apart to allow of painstaking elevation of the thin periosteum covering the rostrum and outer wall of the sphenoid. The mucoperiosteal flaps were then retracted, while, with a sharp spoon or sphenoid punch forceps, the anterior wall of the sphenoidal sinus was rapidly removed along with the septum between the two sinuses. On entering the sphenoid cavity a slight amount of bloody serous fluid was met with, and the probe made out that the floor of the sella was defective in places, as a soft mass was occasionally felt. Touching the dura mater caused the patient great pain. Stein states that the probe by accident entered the brain on the left side, causing immediate collapse of the patient, with slow pulse and respiration and dilated pupils. The operation was hastily completed, an iodoform gauze drain being placed between the septal flaps. The patient soon recovered, and the slight paresis of the right side disappeared within a few days. There was no disturbance of speech. Seven days later considerable improvement in vision was noted and the headache had entirely disappeared. At the time of writing the patient could read and sew and had got rid of her vertigo. The visual fields had increased in size, though the discs were still choked. With the left eye the patient could count fingers at eight feet.

Hirsch's method has several advantages—(1) local anæsthesia; (2) little destruction of tissue; (3) most antiseptic; (4) little danger of infection; (5) no bad after-effects in nose or throat. A good X-ray picture is an absolute necessity and should be carefully studied. One must not go too high for fear of entering the anterior fossa and injuring the optic chiasma, or too low, for then one may get into the middle fossa or the thick bone of the basi-sphenoid. On the other hand, if one goes too far to the side there is the danger of injuring the cavernous sinus, the carotid artery, and the optic nerve.

E. D. Davis (*Journ. Laryngol.*, 1915, p. 281) records two cases of pituitary tumour, the first of which was detected by Treacher Collins. Davis performed the Killian-Hirsch operation, but the hæmorrhage on incising the dura was profuse. Next day hemiplegia developed, with aphasia and paralysis of the right side. The patient died seven weeks later of meningitis. In the second case the Killian-Hirsch operation was also unsuccessful, and later Sargent raised a large parieto-frontal osteoplastic flap including the roof of the right orbit. A cherry-like tumour was found projecting between the two optic nerves, but severe hæmorrhage took place when an attempt was made to remove it. The patient died the same day. In discussing pituitary tumours Howarth called attention to the fact that *these cases were usually shown as post-mortem specimens* (italics Abstractor's). This was due to the fact that the cases were unsuitable for this particular operation. The conditions were diagnosed by the physician and ophthalmologist, who sometimes asked the rhinologist to operate in cases where the tumour was not in the sella. If the tumour was an interpeduncular one it would be above the diaphragma-sellæ, and Hirsch's operation would not relieve the condition; still less would it do so if the tumour was a pontine one. If, however, one hit off a case of true pituitary tumour which was confined to the sella, the operation was useful. Howarth had had a successful case of this sort.

III. *The Trans-labyrinthine Route for Removal of Tumours of the Auditory Nerve.*

The eighth nerve, more frequently than any other cranial nerve, is the seat of tumour growth.

Symptoms.—In a typical *advanced* case the following symptoms and signs may be looked for, but it must be emphatically stated that it is advisable to diagnose tumours of the auditory nerve as early as possible, at least if they are to be successfully removed by the trans-labyrinthine route:—The patient suffers from headache, deafness, tinnitus, giddiness, vomiting, and disturbance of gait. These symptoms have often been slowly progressing for some years. Otoscopy shows that the drumheads are normal. There is absolute deafness in the affected ear as tested with the noise apparatus in the sound ear. The tuning-fork on the vertex is lateralised to the good ear, while on the diseased side the tuning-fork is not heard at all by air conduction, and, when placed on the affected mastoid, is heard in the good ear. Nystagmus to both sides is usually present, most marked to the sound side. The vestibular reactions are entirely absent. If the left ear be the affected one, and if the patient be rotated to the right, the after nystagmus is of short duration, say 5 to 8 seconds, whereas if the patient be rotated to the left the after nystagmus, which in this case comes mainly from the healthy labyrinth, is of almost normal duration, say 20 seconds. The caloric reaction is lost upon the diseased side, and simultaneous cold syringing of both ears produces nystagmus to the affected side, due, of course, to the action of the cold lotion on the normal ear. The electrical reaction of the vestibular nerve is absent on the affected side, an important point in the diagnosis between tumour and old labyrinth suppuration. In the latter condition the vestibular nerve reacts to electrical stimulation. On applying Rhomberg's test the patient tends to fall to the side of the lesion, and the pointing test also shows a spontaneous error to the side of the lesion. Neurological examination may reveal an affection of the sensory root of the fifth nerve on the affected side, with loss of the corneal reflex. The function of the chorda tympani and of the facial and abducens nerves may also be destroyed. If a good radiogram be obtained, it may show that the internal auditory meatus is dilated on the diseased side.

Examination of the eyes shows that the fields of vision are contracted, and that there is swelling of the optic disc and dilatation and tortuosity of the veins, most marked as a rule on the side of the lesion.

Schmiegelow of Copenhagen (*Zeitschr. f. Ohrenheilk.*, Bd. lxxiii. S. 1) states that tumours of the acoustic nerve (cerebello-pontine angle tumours) present such a well-marked clinical picture that, with the aid of modern diagnostic methods, they can be recognised so early that the surgeon has only to deal with a small growth. Before 1903 these cases were regarded as inoperable, but in that year Krause pointed out a route by which it was possible to get at the posterior and inner part of the petrous portion of the temporal bone (para-cerebellar route). The majority of cases are still operated upon by this method. The dura of the posterior cranial fossa is widely exposed on the side of the tumour and may be divided at the time of the original operation or eight days later. The cerebellum is now pushed towards the middle line with a retractor to give access to the region of the internal auditory meatus. As the distance to the internal meatus varies from 6·5 cm. in children to 10 cm. in adults this route is long and difficult. Such great pressure has to be exerted on the cerebellum, and also on the pons and medulla, that difficulties occur with the respiration and heart action and incline the surgeon to break off the operation. Henschen has collected 42 cases which showed a *mortality of* 80 *per cent.* It is therefore little wonder that surgeons looked about for another route: and in 1904 Panse proposed that tumours of the eighth nerve should be removed through the middle and inner ear, and in 1911 Quix of Utrecht was the first to operate by this route. As the labyrinth is functionally dead in these cases one need have no hesitation in removing it. Schmiegelow remarks that in healthy people the tympanum and antrum are sterile, and for this reason there ought to be no danger of meningitis. The only objection to the trans-labyrinthine route is the risk to the facial nerve, and, although this nerve withstands destruction better than the auditory, by the time the patient is seen it has already been destroyed by the tumour in many cases. If, however, the facial be healthy, it can be entirely exposed throughout its course in the petrous bone, and turned to one side, though this adds greatly to the difficulty and length of the operation. In order to remove the growth, which may be as large as a bantam's egg, it is necessary to perform a free radical mastoid operation and thereafter to obtain space reaching in front to the carotid canal, below to the jugular bulb, behind to the sigmoid sinus, and above to the dura of the temporo-sphenoidal lobe. The danger of injuring the carotid is small, as this vessel runs in a canal which one can break open without difficulty in the removal of the petrous pyramid. (Ruttin had already shown that it was possible to remove the petrous pyramid during life.) Bleeding from the sigmoid sinus can be stopped by plugging, but the inferior petrosal sinus and jugular bulb are much more likely to be injured and to give rise to troublesome hæmorrhage. In fact, the operation may have to be broken off on account of severe bleeding. This need not prevent a successful result after a pause of a day or two (Quix's original case). The escape of cerebro-spinal fluid is not likely to give rise to trouble. After removal of the petrous pyramid, one raises the temporo-sphenoidal lobe and splits the dura beneath the superior petrosal sinus as well as that lining the internal meatus, and thus completely exposes the tumour. (A neurofibroma usually appears as a shining, round, whitish swelling about the size of a hazel nut, whereas a glioma is softer and more vascular.) After the tumour has been removed, in one piece or in bits, the wound cavity is packed with iodoform gauze or worsted, and a plastic operation is performed on the membranous meatus as at the end of an ordinary radical mastoid operation.

Schmiegelow states that he only knows of four cases which have been operated on by the trans-labyrinthine route; but as yet there have been no deaths. The method has the advantage that one works extradurally until the very end of the operation. In the para-cerebellar operation one often cannot see the tumour at all, and must therefore trust to palpation, as it is not safe to exert too much pressure on the brain, at any rate in the posterior fossa. Schmiegelow thinks that if a tumour cannot be removed by the trans-labyrinthine route, it cannot be removed by the para-cerebellar one, though the adoption of the former method does not prejudice a subsequent operation by the latter. Even if the tumour turns out to be an infiltrating one, the patient is not in a worse position if one performs what perforce has to be only an exploratory and decompression operation. On the other hand, the trans-labyrinthine is the only method which one can adopt with success in a case of true tumour of the acoustic nerve, originating within the internal auditory meatus. With regard to the technical difficulties Schmiegelow admits that the trans-labyrinthine route is the more difficult, especially for the general surgeon who is not accustomed to the topography of the parts.

THE FUTURE OF OTO-LARYNGOLOGY.

In his Semon lectures M'Bride (*Journ. of Laryngol.*, 1913) writes as follows:—"There are in all specialities, but more particularly in those which are of comparatively recent growth, periods which may be termed critical. In laryngology there have been various minor crises, if I may be allowed the term, but latterly the development which was heralded by bronchoscopy, and which includes the perfecting of direct laryngoscopy, œsophagoscopy, and gastroscopy, has necessitated the acquiring of a new technique for those of us who have worked under the old régime. When such a critical time arrives the conscientious specialist has to decide whether he shall take the steps necessary to perfect himself in the newer methods, retire from practice, or hand over the care of patients requiring such methods of manipulation to a younger man." . . . "It appears to me now that from the lines on which otology and laryngology are extending, no other deduction can be drawn than that soon they must separate. The literature of each has become so extensive, and the tendency of each to occupy new and divergent areas has of late been so marked, that they are rapidly assuming proportions which will make it difficult for the same man to teach and even to practise both." . . . "Whenever the aurist, the laryngologist, and rhinologist begin to operate from without, be it on the mastoid, trachea or accessory sinuses, his sphere of operations must become very considerably extended and would ultimately embrace all the local complications and many of the adnexa. Such progress is towards the establishment of departmental surgery as an adjunct and direct offspring of specialism."

Barnhill (*Journ. of Laryngol.*, 1915, p. 193) is of opinion that the field of work of the oto-laryngologist will of necessity be widened until any limitation which does not include the diseases of the the entire head and neck would be unwise. Barnhill, however, differs from M'Bride as to the line of cleavage in the ranks of the specialty. He does not advocate that all oto-laryngologists should undertake the many difficult and often capital operations necessary about the head and neck. Only a small percentage would feel qualified to do so, and for this reason it is advisable that those who are not surgically inclined should limit their work to the therapeutic and local treatment of nasal and auditory diseases, while those whose opportunities in surgery have been ample, and who are willing to devote their time to anatomical study and improving their surgical technique should untertake the difficult surgical problems of the upper-air tract. Such an arrangement would be best for the patient because it would save him from operation by those often little qualified to do surgery, and would insure better therapeutic measures from those who were not burdened by important surgical cases. J. S. F.

VINCENT'S ANGINA.

Recently we dealt with the subject of Vincent's angina in one of our reviews (*Edin. Med. Journ.*, April 1914), and we then drew attention to the therapeutic value of salvarsan applied locally to the surface of the ulcer. Experience of this method of treatment demonstrated that the healing process was considerably accelerated and that better results were obtained than by the older applications, such as tincture of iodine, nitrate of silver, etc.

Our excuse for again referring to this form of tonsillar ulceration is to be found in the fact that a considerable number of these cases have occurred amongst the soldiers under training in this country. The possibility of mistaking the condition for diphtheria or for syphilis renders an accurate diagnosis of the greatest importance, when we are dealing with large numbers of men congregated in barracks or in hospital wards. Wingrave has found the condition, for the most part, amongst Territorials who had been taken from civil life and sedentary occupations and put through a trying and rapid training.

In our own experience, the mild type is that most commonly met with in which the inflammation is confined to the surface of one tonsil. A greyish-white membrane conceals an ulcerated area; there is slight swelling and redness; the tonsillar gland is palpable and tender; there is a feeling of chilliness and malaise and discomfort in swallowing, but the acute pain so characteristic of the developing quinsy is absent.

In order to arrive at a correct diagnosis it is essential to stain and examine a film preparation from the affected area. A culture is unnecessary in the first instance: thus valuable time and anxiety are saved and the appropriate treatment can be at once commenced. Should the fusiform bacilli of Vincent, along with the spirillum or spirochæte, not be found, then the culture is required in order to determine more accurately the existence of the Klebs-Löffler bacillus. Wingrave (*Lancet*, London, 24th July 1915) points out that the film should not be passed through a flame, but that it should be allowed to dry in a warm place by radiant heat. Negative staining may be effected by pouring over the film a 5 per cent. solution of collargol in distilled water. This is poured off quickly, the slide placed in the upright position and dried in warm air. Positive staining is best done by the usual Gram method, but the alcohol bath should be omitted. In the negative stained film, the spirochætes and fusiform bacilli appear brilliantly illuminated on a copper-coloured ground. The spirochæte of Vincent is a coarse undulating thread, and is not really spiral like the spirochæta pallida. It is more like an eel or a whiplash, while the pallida is like a coiled spring or corkscrew. The fusiform body is characteristic and is the invariable associate of Vincent's spirochæte, but is not associated with the pallida. It appears as a large rod, slightly bent, tapering towards each end and often showing a clear equatorial head.

With regard to the treatment of this condition Wingrave considers that the most efficient antiseptics will be found in trikresol and formalin. He finds that iodine is useless. The slough should be thoroughly removed and the ulcer swabbed with a 5 per cent. solution of trikresol in alcohol, or a 25 per cent. solution of lysoform, three or four times daily. A frequent mouth-wash of weaker solutions of the same should also be employed. When there is much swelling an astringent wash of permanganate of zinc is beneficial—half a grain to the ounce of warm water. These cases are often associated with pyorrhœa alveolaris; and for this reason he finds a mouth-wash containing five minims of English oil of lavender in a 5 per cent. alcoholic solution of trikresol very useful. Of this a few drops may be added to half a tumbler of water.

Stark records the treatment of twenty-five cases of this condition with sodium perborate (*Annals of Otology, etc.*, St. Louis, March 1915). He points out that perborate of soda is not the same as the common borax of commerce. It splits up in the mouth, forming nascent peroxide of hydrogen. It is usually prescribed as a powder—two teaspoonfuls being dissolved in a tumbler of water and used frequently as a mouth-wash and gargle. It is exceptional to find a case in which a cure does not occur in a very short time.

REMOVAL FROM THE ŒSOPHAGUS OF A TOOTH-PLATE EMBEDDED FOR EIGHTEEN YEARS.

Cases have been recorded from time to time in which foreign bodies have lain impacted in the œsophagus for long periods without producing any serious local lesion. St. Clair Thomson has described the removal of a tooth-plate from the gullet of a young man aet. 22 after two and a half years' impaction (*Lancet*, London, 4th January 1913). An interesting feature connected with this case was that he had been examined with the X-rays and through the œsophagoscope on more than one occasion, but the tooth-plate had escaped detection. When examined by St. Clair Thomson, however, it was observed at the level of the bifurcation of the trachea, and removed by forceps. A slight fibrous contraction of the œsophagus was noted at the seat of impaction, but no further difficulty in swallowing was complained of after the foreign body had been removed. Guisez records a case in which a ten-centimes piece had lain in the gullet for four years (*Maladies de Œsophage*, Paris, 1911).

W. G. Porter has described a case in which a halfpenny was lodged in the œsophagus of a child aet. 11 for eight years (*Scottish Otol. and Laryngol., Soc.*, November 1913). The boy complained of somewhat indefinite gastric symptoms of three weeks' duration, but inquiry into the history elicited the fact that the boy had swallowed a halfpenny at the age of four, and since that time he had never had the best of health. He was small for his age and poorly developed. An X-ray picture showed the foreign body in the œsophagus between the 5th and 6th dorsal vertebræ. Through the œsophagoscope the halfpenny was seen lying low down. On introducing the forceps to seize the coin it slipped away and entered the stomach. The boy afterwards stated that it had passed *per rectum*, and a skiagram of the abdomen taken a fortnight after the operation supported his statement. Careful examination of the wall of the gullet revealed no evidence of ulceration or other lesion.

The most remarkable case of the kind, however, has been published by Braden Kyle (*Laryngoscope*, St. Louis, March 1914). The foreign body, a plate bearing false teeth, was removed from an adult male æt. 72 after being embedded for eighteen years. An upper plate bearing four front teeth became detached during sleep. When the patient awoke and discovered his loss he inserted his finger into his throat and was able to touch the plate, but in his endeavours to grasp it he only succeeded in pushing it further down. Attempts to remove it were made by means of probangs and bougies, but when these proved unsuccessful the patient was dismissed with the comforting advice that he had never really swallowed the plate, and that if he had done so it was no longer in his œsophagus. For months afterwards he could only swallow liquids and his weight steadily decreased.

Six years after the disappearance of the teeth the first X-ray plate was made, and a slight shadow just above the cardiac end of the gullet was considered suggestive of the position of the plate, and bougies were again passed without success. Twelve years later he was referred to Kyle. An X-ray was made, and the tooth-plate was located immediately behind and a little way below the cricoid cartilage. The œsophagoscope was passed and a portion of the surface of the plate was brought into view, but its upper edge appeared to be covered by fibrous tissue. Efforts were made with various forceps to grasp the edge, but without result. The thicker tissues, however, were partially displaced and the edge of the plate was gripped, but considerable force failed to dislodge it. The attempt was renewed two days later, and some of the fibrous tissue was nibbled away with forceps, thus exposing the margin of the plate. It was again seized, but the forceps slipped off. Repeated efforts failed. A few days later another unsuccessful attempt was made. The third occasion however proved successful. The plate was found to be in a perfect state of preservation. There was practically no hæmorrhage, and very little pain followed the final operation. Kyle considers that his success was due largely to the fact that he proceeded slowly and made as little trauma as possible. By loosening the foreign body from its fibrous bed, and by setting up slight inflammatory reaction and then waiting, he was enabled to remove it without much laceration of the tissues. A. L. T.

PATHOLOGY.

UNDER THE CHARGE OF

THEODORE SHENNAN, M.D., AND JAMES MILLER, M.D.

CHORIONEPITHELIOMA.

ALTHOUGH they remain the chief unsolved problem of medical science, tumour formations probably interest the medical man more than any other type of disease. Prominent among the neoplasms in this respect comes the chorionepithelioma. The reason for this lively interest is partly the rather uncertain position which it occupies in the category of new growths, partly the unique characters which it possesses.

The condition was first known as deciduoma malignum (Sänger, 1889), on the assumption that the decidual cells were the essential elements, the chorionic elements being adventitious. In 1894 Gottschalk contended that the disease was primarily one of the fœtal tissues, being a sarcoma of the chorion arising from the Langhans' layer of cells which was looked upon as fœtal mesoblast. In 1895 L. Fränkel used the term syncytioma malignum in connection with a case, in consequence of his regarding the syncytium of the chorionic villi as the real element in the tumour. Marchand in a series of papers did much to clear up the true position of the growth. He regarded the tumour as a development of both cell layers which cover the villi, the Langhans' layer as well as the syncytium. As a result of a thorough investigation of the histology of the human placenta and its tumours Marchand concluded that the chorionepithelioma was the malignant homologue of the hydatid mole originating both from fœtal and maternal tissues. In 1896 Aschoff, also from a study of the normal histology of the placenta, concluded that the syncytium and the Langhans' layer alike were derivatives of the fœtal tissues, and were both epiplastic. This view has been fairly generally accepted, and as a result the term chorionepithelioma has been adopted in preference to the older terms.

The unique character of the tumour lies in its possessing neither reticulum nor blood-vessels. In other words, it neither borrows its support and nourishment from the surrounding tissues, nor does it form such structures of its own accord. It is the one example of a tumour composed of cells and of cells only. Moreover, it is one of the most malignant of growths, eroding and destroying the tissues of the host as no other tumour does, and tending to produce secondary deposits at a very early date. This peculiarly malignant character is no doubt due to the fact that the function of the normal homologous tissue — the syncytium of the chorionic villi — is phagocytic and destructive in a high degree. Marchand thus sums up the tumour: "In the chorionepithelioma we have an embryonic tissue, the product of a new sexual generation, disseminating itself in the maternal organism and not infrequently destroying it."

While the above description holds good for the typical chorionepithelioma it must be admitted that there is some variation in the characters of individual cases. Teacher thus classifies the chorionepitheliomata and allied tumours:—

1. The simple hydatidiform mole, which may be a dangerous disease, even apart from any actual malignancy.

2. Malignant hydatidiform moles, which differ from the preceding but little in their structure—a little more overgrowth of the epithelium, a little more infiltration of the decidua, the invasion of vessels, and the establishment of metastatic growths, which may also contain villi in the vaginal vessels and the lungs. In the combination of epithelium which is the essential malignant structure with a stroma which may show growth but no malignancy, this may be compared with malignant papillomata.

3. The pure chorionepithelioma in which no trace of fœtal mesoblastic tissue is to be found.

4. Connecting these two, tumours composed almost entirely of epithelial tissue in which a few villi, either normal or more or less hydatidiform, are seen.

Thus, starting from the normal chorionic villus with its power of erosion limited and defined, we have next in order the hydatid mole, which is an example of abnormal proliferation of the villus and its coverings, still limited and defined as to its erosive action. Then comes the malignant hydatid mole formed of villi and coverings, unlimited in its action, so that destruction of uterine tissue occurs with consequent erosion of vessels and formations of metastatic growths. It should be noted, however, that the capacity of these metastases to develop into secondary tumours varies. Lastly, we have cases where no villi occur; only the coverings are present and these possess unlimited proliferative power. The last two types are included under the term chorionepithelioma.

As is well known, these tumours are most frequently met with in the uterus, commonly in connection with a normal pregnancy, an abortion or the simple homologue—the hydatid mole. Occasionally they occur outside the uterus. The commonest site for such ectopic chorionepitheliomata is the vagina, but they may be met with outside the sexual organs altogether. To explain such growths two suggestions have been made—(1) that the primary uterine growth has been removed by curettage or has disappeared; (2) that chorionic villi washed away in the blood-stream, as we know them to be in normal pregnancies, take on, for some unknown reason, proliferative activity and develop into a tumour.

But apart from these cases of chorionepitheliomata, which occur in pregnant women, there is a number of authentic instances of tumours of a similar nature which have no relation to pregnancy at all, occurring as they do in virgins or in males. Curiously enough such tumours are much more common in the male. They are of two types—(1) those which are found in relation to a teratoma or dermoid; (2) those which have no such relation. The first type is most frequently met with in the testicle, although Ritchie has described one in the mediastinum, and others have been found in the ovary. The second type is more rare, but has been found in a variety of situations, *e.g.* testicle, ovary, brain, omentum, retroperitoneal tissue, liver, bladder, skull. It is a question which may reasonably be raised, whether some of this latter group may not have occurred really in connection with a dermoid which was small and inconspicuous. Indeed, in at least one case, the observer on revising his slides in the light of later work came to the conclusion that a dermoid had been present after all. The interesting point is that these tumours have the very same characters as the ones which are found in relation to pregnancy, abortion or hydatid mole, viz. a tumour of great malignancy, characterised by the occurrence of hæmorrhage both in the primary growth and in the metastases. Moreover, these metastases are met with most frequently in the lung.

The question now arises—How are these chorionepitheliomata which occur in relation to dermoids to be explained? The answer to this question is intimately bound up with the question of the nature of the dermoid itself. According to the teaching of Marchand and Bonnet the dermoid is the product of the development of a ripe fertilised ovum of the mother of the individual who carries the dermoid. It is, in other words, a twin included within the body of the individual. We have all stages, from twins which are separate and distinct individuals through the attached (Siamese) twins to the included twin or dermoid. Ackanazy has shown that dermoids can be experimentally produced by injecting a pounded-up embryo mouse into the abdominal cavity of another mouse.

Another explanation of the dermoid is that it is the result of the development of a sexual cell belonging to the individual who harbours the dermoid. It has been demonstrated that there is during development a segregation of the sexual cells to the sexual organs. They are not all produced *in situ*. They are collected from neighbouring parts. During this process of collection a sexual cell may get cut off and isolated and later develop into a dermoid. This would explain the occurrence of dermoids in parts other than the sexual organs. To explain the dermoids of the sexual organs one has merely to suppose a germ-cell, without being complemented by its like of the opposite sex, taking on proliferative activity and producing a new individual, or as near to a new individual as space and surrounding permit. The stimulus to the formation of a new individual may apparently come from other things than a spermatozoon. Moreover, that the male sexual cell should produce under such conditions something approximating to a new individual is apparently not so impossible as it would at one time have been considered. A fact which favours this view of the origin of dermoids as opposed to the included twin view is, that they occur most frequently by far in the sexual organs or in their immediate neighbourhood.

Still the question remains—How is it that malignant growths formed of fœtal epiblast (chorionepitheliomata) arise in connection with such tumours? In other words, where does the dermoid get its chorionic villi from which to produce its chorionepithelioma? That is quite easily explained on either assumption. Whether the dermoid develops from a germ-cell of the mother of the individual or from one of the germ-cells of the individual himself it will, as an embryo, tend to produce its own trophoblast (the term applied to the layers of cells covering the chorionic villi), and from this trophoblast (under conditions which we shall know when we know the cause of tumour growth in general) the chorionepithelioma arises. The question might well be asked—Why do malignant growths not arise from tissues of the dermoid other than trophoblast? Why, for example, do you not get sarcomata or epitheliomata arising in relation to dermoids? The answer is that such tumours do occasionally occur. Schmorl has published a case where several of the tissues of a dermoid became malignant and produced metastatic growths. It must be admitted, however, that such cases are rare. Yet one would *a priori* be inclined to expect that chorionepitheliomata should occur as the most common malignant growth arising from a dermoid. The trophoblast of an embryo possesses normally the property of local malignancy. It is by virtue of this that the villi find their way into the maternal blood-spaces. The hydatid mole—chorionepithelioma group of tumours—is by far the commonest type of embryoma. It is not the only type, as has been emphasised by Ribbert and a number of other observers quite recently. Angiosarcomata also occur, but they are very rare. It is a matter of no surprise therefore that the common type of growth, and of malignant growth occurring in connection with dermoids, is the chorionepithelioma.

A study of the metastases in cases of chorionepithelioma is interesting. An analysis of 230 cases made by Scheidemendel showed that 95 had secondary deposits of the growth in the lungs, a much larger percentage than in the case of other types of cancer. Hitschmann quotes 94 cases of which 70 showed lung metastases, 3 showed vaginal metastases, and 3 metastases in other organs. Eighteen showed no secondary growths at all. When no metastases occur in the lung it does not follow that no tumour-cells reach that organ. Schmidt and other observers have shown that, in cancers in general, metastases are quite frequently deposited in the lungs without the development of secondary tumours. The presence of the cancer cells induces thrombosis, and the thrombus becomes organised and the cancer cells destroyed. Thorel has traced this destructive process from its commencement onwards in the inoculable mouse tumours. The same thing occurs in some cases of chorion-epithelioma, *i.e.* tumour-cells reach the lung, but fail to grow. In other cases the growth is slight. Brasche describes a case in which there were very numerous tumour emboli in the lungs, but these showed little evidence of growth. Teacher and others have published cases in which the lung metastases after growing for a time underwent a process of involution. In other cases (Heimann) the secondary deposits are formed of syncytium only, although the primary growth showed Langhans' layer in addition to syncytium. In other words, only one cell layer was generally malignant although both were locally malignant. The conclusion which one draws from these facts is that a certain percentage of chorionepitheliomata, although exhibiting all the characters of local malignancy in a high degree, are not generally malignant, *i.e.* are not capable of growing in tissues other than the site of origin. In a small percentage of cases the character of general malignancy is possessed only by one of the cell elements, and that the syncytium. It is questionable whether this limited malignancy has any great effect upon the question of the duration of life of the host. Local malignancy in a tumour may endanger life just as much as does the capacity to produce metastatic growths.

J. M.

NEW BOOKS.

Diseases of the Arteries, including Angina Pectoris. By Sir CLIFFORD ALLBUTT, K.C.B., M.D., F.R.S., etc. In Two Volumes. Pp. xi. + 534 and 559. London: Macmillan & Co., Ltd. 1915. Price 30s. net.

THE review of a work of the size and character of the book before us is more than usually difficult. The two volumes cover respectively 534 and 540 pages. The subject-matter is diseases of the arteries, and in this is included angina pectoris. It is not a treatise on morbid anatomy, it is a clinical treatise; and when it is realised that it deals with a section of clinical medicine which has had comparatively recently a very practical impulse given to it by the introduction of the sphygmomanometer, and much interest added to it by the contradictory values put upon the finding of the new clinical instrument by observers who claim to be practical clinicians, the magnitude and character of the work can be imagined. We know of no other book devoted to diseases of arteries from the clinical standpoint; there are only books on the pulse, on blood-pressure, on arterial hypertonus and sclerosis, on angina pectoris, and so forth. The title claims for the book a larger field than has hitherto been attempted.

The first volume is devoted to arteriosclerosis, and is divided into seven chapters, the first being introductory, while the six following deal respectively with the physics of the circulation, the viscosity of the blood, causes of arteriosclerosis, arteriosclerosis and the kidneys, symptoms of arteriosclerosis, and morbid anatomy of arteriosclerosis. All these chapters deal with their various themes at length, and, as in all Sir Clifford Allbutt's writings, they display a wide acquaintance with the literature of the subject with which he is dealing and a critical reasoning which is interesting even when not convincing. The reviewer recalls the *dictum* of a distinguished and accomplished pathologist and physician, who declared that *arteriosclerosis* was the most unfortunate word ever introduced into medicine. The book before us has not lessened the correctness of that judgment. Until physicians and pathologists decide to put atheroma back into its old place and to keep it there, there can be no correction of the error that atheroma and arteriosclerosis are synonymous terms—that atheroma is arteriosclerosis and arteriosclerosis atheroma, that they are phases or stages of one process, that the one is a local and the other a general manifestation of the process.

The second volume continues the consideration of arteriosclerosis under chapters headed respectively arteriosclerosis and myocardial values, diagnosis and prognosis of arteriosclerosis, and treatment of arterial disease. These chapters occupy the first 143 pages of this volume. In the first chapter the treatment of the subject of myocardial values left the impression that there were no means of determining heart power, that every test broke down, and yet, presumably, Sir Clifford Allbutt has often to pass judgment upon the capability of the individual myocardium, and as an opinion is based upon the data available, it is a reasoned finding, and the steps leading to the conclusion ought to be stateable. This completes Part I. Part II. is divided into two sections. The first deals with aortitis, and is confined to some 70 pages; the second is devoted to angina pectoris, and contains 9 chapters. From the foregoing enumeration of the subjects dealt with it can be realised that they are very fully discussed, and that anything like a critical review of the chapters would require an amount of space which is not available even if the reviewer were willing to undertake the task. The whole work displays the features which we all recognise as especially belonging to the author—there is the extensive knowledge of what has been written by others, there is the philosophic treatment of the subjects he handles, the cultured diction, the intense searching for truth in the labyrinth of written words, of laboratory experiments, of contradictory opinions which command reverence. If we do not think he has always been successful in his quest, we none the less admire the steadfastness and the high spirit in which the goal has been sought. We are glad that Sir Clifford Allbutt has published this work. The spirit in which he has done so breathes in the preface, for it will be a lasting monument to his learning and to the sustained industry of a lifetime. We have the feeling that perhaps never again will a book of this character and quality be written, for the simple reason that in the after-the-war world no one will be able to write it. It could only be the product of one who had lived and worked during the great transition period which has led us to where we now stand.

Principles of General Physiology. By WILLIAM MADDOCK BAYLISS, M.A., D.Sc., F.R.S., etc., Professor of General Physiology in University College, London. Pp. 850. With 259 Illustrations. London: Longmans, Green & Co. 1915. Price 21s. net.

THIS work fills a distinct gap in our physiological text-books. Systematic treatises we have in abundance in this country and America, but with the exception of the English translation of Verworn's *Allgemeine Physiologie* and Claude Bernard's *Leçons*, we have had till now no original text-book by a British or American author exclusively devoted to the subject of general physiology. Verworn was, however, translated into English by F. S. Lee of Columbia University.

The real reason of this scarcity is that it is much more difficult to write a general physiological text-book than a systematic one. The *Principles of General Physiology* have as their base questions involving higher physics and chemistry, and as this means a certain amount of higher mathematics, even an accomplished physiologist may feel some diffidence in undertaking a work like the present. The writers of systematic text-books have not, however, neglected this aspect of physiology, as an examination of Schäfer's work will show, but any discussion has been scattered over the various chapters and a general view avoided.

There are twenty-four chapters. In the first seven are comprised protoplasm, energetics, surface action, the colloidal state, permeability of membranes, osmotic pressure, electrolytes; then follow detailed consideration of water, nutrition, catalysis and enzymes, and so on. The last chapter is occupied with hormones, drugs, and toxins.

We can only indicate some of the excellent material thus provided.

The first chapter on protoplasm discusses its nature in a critical and cautious spirit, as the following quotation shows: "By fixing reagents, structures of various kinds, networks, alveoli, and so forth can be produced. But these structures have no resemblance to the living condition. Obviously they must be produced from constituents already present, so that certain conclusions are admissible from the examination of fixed cells" (p. 26).

The chapters on energetics, surface action, the colloidal state (spelt collodial as the heading of Chapter IV.), and osmotic pressure must have been difficult to write, involving, as they do, higher physics and mathematics. They are, however, extremely well done, and we have seldom seen mathematical treatment so simply and clearly put. Those on water, nutrition, catalysis, and enzymes are thoroughly and accurately done.

There is one admirable general paragraph on reproduction—"The mysterious power of the male has from the earliest time excited wonder, and has, not unnaturally, become the object of religious worship. It is indeed greatly to be regretted that the sexual process should have become the subject of unseemly jesting. . . . But I feel compelled to state my belief that much mischief is done by the habit of looking upon anything relating to sex as, in itself, a matter for jesting apart from any real humour. . . . It is much to be hoped that in the future the sexual process will be looked upon as something essentially beautiful and good, in fact as καλός in the old Greek sense . . ." (pp. 292, 293).

On the subject of the coagulation of the blood the author remarks, "on the whole it appears that the point of view taken by Wooldridge (1887-1893) and developed by Nolf (1906-1908) has the most evidence in its favour" (p. 702). In this connection one may quote Sir Victor Horsley and Dr. Starling, the editors of Wooldridge's scientific papers (London: Kegan Paul, Trench, Trübner & Co., Ltd., 1893), who, in a footnote at p. 35, explain that Wooldridge's Croonian Lecture was refused publication . . . by the Royal Society," whereas regrettable and foolish criticism of it was printed and published *in extenso* by the same Society. Thus does the whirligig of time bring its revenge.

The medical specialist will find many suggestive hints for his own subject. Haycraft showed how the extract of leech heads gave a substance now known as hirudin, which prevents the coagulation of the blood (p. 360), and "a similar antithrombin can be obtained from the liver, as shown especially by Doyon in 1912 (p. 703). These facts may have some bearing on eclampsia where thromboses occur, and especially on the necrotic foci in the liver, described by Schmorl and others. It is a point worth keeping in mind by investigators of this 'disease of theories.'"

It would take up too much space to consider all the good things in this work. It is a mine of information in every way.

The portraits or leaders of science give a greater interest to the work, and indeed the author seems to have this appreciation in common with Carlyle—who liked to see how an outstanding man had looked.

The summaries at the end of each chapter are most useful and elucidate the previous chapters well. We hope that in a future edition a more copious index will be compiled. It is somewhat difficult with the present one to find a forgotten reference on second reading.

NEW EDITIONS.

Manual of Surgery. By ALEXIS THOMSON and ALEXANDER MILES. Fifth Edition. Vol. I. Pp. 774. With 289 Illustrations. Vol. II. Pp. 924. With 301 Illustrations. London: Henry Frowde and Hodder & Stoughton. 1915. Price 10s. 6d. per volume.

IT is only within recent years that any attempt has been made to produce a book on systematic surgery suitable to the needs of the medical student. The older works on this subject were ponderous and encyclopædic in character, and the task of mastering one of them was no light one, especially in view of the amount of material in other subjects which had to be absorbed during the curriculum. The original appearance of the manual by Thomson and Miles, therefore, supplied a much-felt want. To weed out the necessary information from the great mass of material covered by systematic surgery without leaving out essentials, and to compress it within the compass of this manual, was a work of great discretion, but the authors succeeded admirably; and the fact that the work is now in its fifth edition is a proof of its success.

The issue of a new edition within four years of the previous one was also rendered necessary by the rapid advance of the subject. The usual tendency with each successive edition of a work is to enlarge its scope, but the authors have very wisely resisted this temptation, for to have made the manual much larger would have defeated its purpose. As it is, it often contains important points of information omitted in text-books of larger pretensions.

An examination of the regions where advances have been most marked shows that the book is brought well abreast of the time. The lines of advance are indicated shortly and clearly, and the views when expressed are eminently sensible. The illustrations, some of which are new, are very good, many of them excellent.

It is difficult in a text-book to emphasise the relative importance of things, but we feel safe in saying that the student who knows what is contained in this manual, and has his knowledge put in proper perspective by the systematic lecture and clinical instruction, will have a very sound knowledge of surgery. No teacher need hestitate to recommend the work to his students. To the busy practitioner such a book will be invaluable.

Encyclopædia Medica. Edited by J. W. BALLANTYNE, M.D., F.R.C.P.E. Second Edition. Vol. II. Aspiration to Chlorodyne. Pp. viii. + 677. Edinburgh: W. Green & Son, Ltd. 1915. Price 20s. net.

IN this volume there are forty-four principal articles, of which five are entirely new, and the remainder have been revised, or in some cases rewritten. The new articles are on ateleiosis, by the editor; bacteriology, by William Scott; Binet's and other mental tests, by W. B. Drummond; the blood and blood-pressure, by A. Goodall. Dr. Ballantyne's account of ateleiosis gives a good description of this curious form of dwarfing, with references to the literature and especially to Hasting Gilford's work on the subject. Dr. Scott's monograph on bacteriology extends to nearly 80 pages, and is excellently designed to give the general reader a summary of the principles of this branch of medical science. Some 40 pages are devoted to a description of the general phenomena of bacterial life, and the rest of the article gives an account of the different pathogenic bacteria. Altogether this must be regarded as one of the most successful papers in the volume. Dr. Drummond's article on the Binet-Simon and other mental tests is brief, but interesting. There is reason to suppose that these tests will come into much more general use than is the case at present, and the editor has done well to include a special article on them in this volume. The article on the blood by Dr. Goodall is in every way excellent and very much superior to that in the original edition, which was written rather from the physiological than the clinical standpoint, and was not well adapted for the guidance of the practitioner. It need scarcely be said that the present article, written as it is by one who has large experience in hæmatology, is a thoroughly trustworthy guide to the subject. Among the articles which advancing knowledge had rendered obsolete, or partially so, and which have therefore been rewritten, are blackwater fever, by Dr. Felkin; Dr. Alexander Bruce's article on the structure and function of the brain, the re-writing of which has been done by Dr. Ninian Bruce; the affections of the blood-vessels of the brain, by Dr. S. A. K. Wilson; the diseases of the cerebellum, by Dr. Risien Russell; and catalepsy, by Dr. S. A. K. Wilson. It is noteworthy, as showing the great progress of neurology in late years, to how large an extent the neurological articles have required great modification. The revision of the remaining papers has been very carefully and thoroughly done, in most cases by the original authors. The favourable opinion which the first volume of the new edition of the *Encyclopædia* evoked is amply confirmed by this volume; it is a most valuable work of reference, and, considering its size and completeness, is most moderate in price. The illustrations are numerous and well selected.

NOTES ON BOOKS.

Oxford War Primers. A useful series of small volumes devoted to various aspects of medicine and surgery has been issued by Messrs. Henry Frowde and Hodder & Stoughton.

Mr. D'Arcy Power contributes the volume on *Wounds in War* (price 2s. 6d. net). In a brief introduction he emphasises the fact that the effect of the present war on the practice of surgery has been to throw us back to the time before Lister, and has compelled us to revise many of our views on the treatment of wounds. The arrangements for dealing with the wounded, from the application of the field-dressing till the patient reaches the General Hospital at home, are fully detailed, and practical advice is given regarding the procedure at each stage. The chapter on suppuration and its treatment contains much sound advice, without, however, adding much to our pre-war knowledge. The remaining sections are too sketchy to meet the requirements of the newly-joined medical officer.

Injuries of Joints (price 3s. 6d. net) are dealt with by Mr. Robert Jones, which fact sufficiently vouches for the value of this volume. We make bold to say that there is packed into the two hundred pages of this small handbook more practical wisdom on the subject than is to be found in most of the pretentious treatises on "Orthopædics" which have appeared within recent years. Mr. Jones is endowed with a vast fund of sound common sense, which he brings to bear upon his subject, and his crisp, pithy style at once carries conviction to the reader, who accepts his most dogmatic statements without a murmur. We strongly recommend this little manual alike to military and to civil surgeons.

The discussion of *Gunshot Injuries of Bones* (price 3s. 6d. net) has been appropriately entrusted to Mr. Ernest W. Hey Groves, who propounds the general principles governing the management of this most important group of lesions met with in the field. A timely warning is given of the dangers of operative methods in the treatment of gunshot fractures, even when the wound is closed, and all who have had experience in this department of war surgery will agree with the author in preferring extension methods to plating.

Surgery of the Head (price 3s. 6d. net) is dealt with by M. L. Bathe Rawling. While a large amount of space—nearly a fourth of the work—is given up to applied anatomy and cranio-cerebral topography, it may be urged that the young army surgeon is in need of a convenient means of refreshing his memory on details before undertaking cranial operations for gunshot wounds. The remaining chapters contain much useful advice and practical guidance as to what to do, and, still more important, what not to do, in cases of injury to the skull and brain. A little more care in revising the proofs would have avoided certain ambiguities, *e.g.* p. 41, ". . . successful treatment, early and radical, may bring about such results as would have been scoffed at a few years ago." "Scoffed" seems scarcely the right word. And on p. 46, "The bacteria of the soil have a heavy price to pay for the damage they produce. . . ." We are not inclined to waste much sympathy on the bacteria of the soil.

Abdominal Injuries (price 2s. 6d. net) are dealt with by Professor Rutherford Morison and Mr. W. G. Richardson. The text is mainly from the forceful pen of Professor Morison, and the illustrations from the facile pencil of Mr. Richardson. The principles of abdominal surgery are here enunciated with great clearness and authority, and, as we should expect, the advice given is always sound and practical. We cannot avoid the feeling, however, that this is rather an adaptation of the procedures of civil practice to the conditions of active warfare, than the result of actual experience in the field. In referring to transfusion of blood, for example, a footnote is added to the effect that, if possible, the blood transfused should be taken from a relative, and the closer the blood relationship the better. This proposition is doubtless sound, but its application to war-surgery is impracticable. It is a sad commentary on the conditions prevailing in the present war, that the authors have considered it necessary to include sections on "abdominal injuries peculiar to women" and on injuries of the pregnant uterus. The young surgeon suddenly called upon to face the difficult problems raised in gunshot wounds of the abdomen will not go far wrong if he faithfully follows the teaching of this handbook.

Wounds of the Thorax in War (price 2s. 6d. net) is by Mr. J. Keogh Murphy, who writes from experience gained in H. M. Hospital Ship *Soudan No.* 1. The subject-matter is arranged in a practical rather than in a systematic way, which is appropriate in such a work and renders it doubly useful for its purpose. This volume clearly bears the impress of having been written from actual experience, and we strongly commend it to the notice of military surgeons.

BOOKS RECEIVED.

"Abdulla" Almanac, 1916	*(Abdulla & Co., Ltd.)*	1s. 4d.
Anastasseou, Nicolaos. Greek (Modern) Self-Taught. Second Edition	*(E. Marlborough & Co.)*	2s.
Chidley, W. J. The Answer, or The World as Joy	*(S. D. Smith, Sydney)*	7s. 6d.
Clarke, J. J. Protozoa and Disease. Part IV.—Rhizopod Protozoa	*(Bailliere, Tindall & Cox)*	7s. 6d.
Eppinger, H., and L. Hess. Vagotonia. Nervous and Mental Dis. Monograph Series, No. 20		dol. 1
M'Millan, J. F. Infectious Disease in Serbia	*(Baillière, Tindall & Cox)*	6d.
Mosso, A. Fatigue	*(Geo. Allen & Unwin, Ltd.)*	2s. 6d.
Ricklin, F. Wish-Fulfilment and Symbolism in Fairy Tales. Nervous and Mental Dis. Monograph Series, No. 21		dol. 1
Russian Self-Taught	*(E. Marlborough & Co.)*	2s.
Smith's Automatic Self-Registering Diary for 1916	*(T. J. & J. Smith, Ltd.)*	—
Warwick, F. J., and A. C. Tunstall. First Aid to the Injured and Sick. Ninth Edition	*(J. Wright & Sons, Ltd.)*	1s.
Warwick, F. J., and A. C. Tunstall. Questions on First Aid to the Injured and Sick	*(J. Wright & Sons, Ltd.)*	6d.

EDINBURGH MEDICAL JOURNAL.

EDITORIAL NOTES.

Antiseptic Treatment of Wounds in War.

No subject has more seriously exercised the minds of surgeons in the course of the war than that of the treatment of wounds. The first shock received by the surgical officers in the field was the discovery that their old antiseptics "had gone bankrupt."

The attenuated chemical solutions on which they had relied with satisfaction in civil practice were useless under the conditions met with in war, and aseptic measures were obviously inadequate. Soon we heard the cry "Back to Lister," and ere long our younger medical officers were trying to learn the first principles of antiseptic surgery, which had been less firmly inculcated on them than they had been on the generations of surgeons who preceded them. Sir W. Watson Cheyne was one of the first to revive the teaching of his great master, and he has never ceased to uphold the principles and practice which enabled Lister to revolutionise the practice of surgery.

In his most recent paper, published in the *British Journal of Surgery* for January 1916, he returns to his task and deals trenchantly with the plan of treatment advocated by Sir Almroth Wright. Once more he enunciates the fundamental principles of the antiseptic system, and effectively disposes of the proposition of Wright that it is by their "lymphagogic" action that chemical antiseptic agents do good.

Sir Watson Cheyne admits that the investigations forced upon him by the condition of the wounds met with in warfare have taught him some new facts with regard to the mode of action of antiseptic agents and the reaction of the tissues, but these new facts are all in accordance with Lister's teaching, and merely emphasise and extend it.

With regard to the practical application of Lister's work, he states four points which are of the greatest importance in carrying out the disinfection of a wound—(1) The surgeon must believe that such disinfection is possible; (2) he must choose a suitable antiseptic; (3) he must see that the antiseptic has free access to every part of the wound; and (4) he must arrange in some way or other for the antiseptic to remain in the wound for some time so as to obtain a continued instead of a momentary action. A number of illustrative cases abundantly prove that by carrying out these rules efficient disinfection of even the most severe wounds may be effected.

So far the paper is constructive; the remainder is a destructive criticism of the plan of treatment which postulates the sufficiency of the defences of the body to overcome the infection. That the fluids and tissues of the body play an important part in antagonising and eliminating bacteria is no new discovery. It was indeed one of the factors on which Lister and his disciples laid great stress, and "healthy tissues are the best antiseptics" became almost an aphorism in the teaching of surgery.

In criticising the treatment by strong salt solutions, the writer expresses a natural preference for the term "brine" rather than "hypertonic solution" or "phylacagogic agent," and he finds himself unconvinced by data based upon capillary-tube experiments and unsupported by clinical results. (He has evidently overlooked some clinical records reported by Sir Almroth Wright's followers.)

It may not be possible to agree with Sir Watson Cheyne on every point, but we feel that he has done good service in reaffirming the unassailable position of the "antiseptic" as against the "phylacagogic" treatment of wounds.

CASUALTIES.

KILLED in action near Ypres, Colonel ERNEST OCTAVIUS WIGHT, R.A.M.C., on 19th December 1915, while helping to extricate motor ambulances from a dangerous position.

> Colonel Wight was born in May 1858, educated at St. Mary's Hospital, London, and in 1881 took the diplomas of L.R.C.P.(Edin.) and M.R.C.S.; he took the D.P.H. of the London Colleges in 1902. He entered the R.A.M.C., then the Army Medical Department, as Surgeon on 6th February 1882, became Surgeon-Major on 6th February 1894, and Lieutenant-Colonel on 6th February 1902.

LOST in H.M.S. *Natal* on 31st December 1915, Staff-Surgeon ALFRED OSWALD HOOPER.

> Staff-Surgeon Hooper was educated at Edinburgh University, where he graduated M.B. and Ch.B. in 1903, entered the Navy in the following year, and became Staff-Surgeon on 21st November 1912.

LOST in H.M.S. *Natal*, Surgeon DOUGLAS WHINSTER KEILLER MOODY.

> Surgeon Moody was educated at Aberdeen University, where he graduated M.B., Ch.B. in 1900. He took a temporary commission as Surgeon in the Navy on 10th August 1915.

KILLED in action in the Gallipoli Peninsula on 29th November 1915, Major FREDERICK MILLER JOHNSON, Australian Army Medical Corps.

Major Johnson was educated at Edinburgh University, where he took the M.B. and C.M. in 1886, and the M.D. in 1888. He then returned to Australia and went into practice at Melbourne.

DIED of wounds received in Mesopotamia, Lieutenant MANOCKJI BURJORJI PATEL, I.M.S.

Lieutenant Patel took the Scottish Triple Qualification in 1908, and also the D.P.H. in 1910.

LOST at sea in P. & O. s.s. *Persia* on 30th December 1915, Dr. WILLIAM EVERETT.

Dr. Everett was educated at Edinburgh University, where he took the degrees of M.B. and C.M., with honours, in 1889, and M.D. in 1893.

DIED of wounds in the Mediterranean, Lieutenant WILLIAM WILKIE DEANS, R.A.M.C., reported in the casualty list published on 13th January.

Lieutenant Deans took the Scottish Triple Qualification in 1901, and received a temporary commission in the R.A.M.C. on 10th September 1914.

THE following student of medicine appeared in a recent casualty list: —

KILLED in action in France on 19th December 1915, Lieutenant HENRY HUGH MACROSTY, Royal Field Artillery, aged 21.

Lieutenant Macrosty had completed his second year of medical study at Edinburgh University.

New Year's Honours.

HIS Majesty has been graciously pleased to confer the honour of knighthood on Mr. George Andreas Berry, M.B., F.R.C.S., Honorary Surgeon-Oculist to H.M. the King in Scotland.

DR. THOMAS WRIGHT PARKINSON, a graduate of Edinburgh University, and formerly a prominent member of the Edinburgh Australasian Club, has been similarly honoured.

WAR HONOURS.

THE following are among the names mentioned in Field-Marshal Lord French's dispatch of 30th November 1915, for gallant and distinguished service in the field, and on whom honours have recently been conferred:—*C.B.*—Colonel H. M. W. GRAY (T.F.). *C.M.G.*—Colonel H. ALEXIS THOMSON (T.F.).

WE regret to have to announce the death of Emeritus-Professor John Wyllie, which took place at Edinburgh on 25th January. We hope to publish an obituary notice of Professor Wyllie in our next issue.

Triple Qualification Passes.

AT the examinations of the Board of the Royal College of Physicians of Edinburgh, Royal College of Surgeons of Edinburgh, and Royal Faculty of Physicians and Surgeons of Glasgow, held at Edinburgh in January:

The following candidates passed the *First Examination*:—Alice Fung-a-Ling, Alexander F. Caddell, Gwilym ap Vychan Jones, William Gibb, and David Gilmour.

The following passed the *Second Examination*.—Eliza J. Stuart, Thomas T. Read, Cyril T. Gasking, Andrew F. Briglmen, William B. Watson, P. M. Fernando, and George P. de Silva.

The following passed the *Third Examination*.—Spearman C. Swinburne, James H. Brown, Robert M'Laren, William B. Lawson, Robert G. Battersby, Benjamin Ajaji-Young, and Thomas Jackson.

The following candidates having passed the *Final Examination*, were admitted L.R.C.P.E., L.R.C.S.E., L.R.F.P. and S.G.:—Thomas Cormack MacGowan, Claud Aldous Slaughter, Theodore Clement van Derzeil, Alexander William M'Gregor, Charles Kinsley Carroll, George Lynn Pillans, L.D.S., William Lyle Paterson, David Scott Taylor, David Singaravel Luther, and Donald Sanders Graham.

CONGENITAL KYPHOSIS.

By DAVID M. GREIG, C.M., F.R.C.S.(Edin.),
Senior Surgeon, Dundee Royal Infirmary.

THE congenital kyphosis described in the following case was found in association with a cervical rib and a congenital high scapula. Cervical ribs are not uncommon, congenital high scapula is by no means a rarity, and though there is not necessarily an association between these two, it is, I think, not unlikely that in certain cases of high scapula the malposition is due to peculiarities of development of ribs or spine. I would class such cases of high scapula in a special division as one classes cases where osseous union exists between the scapula and the spine.

In the *Edinburgh Medical Journal* (September 1910) I published a case of congenital scoliosis due to the inter-position in the spinal column of an extra half vertebra.[1] The literature of this subject is not very extensive, and, except in post-mortem examinations of fœtal abnormalities, there are not many cases of this condition described. It is, however, one which can be readily understood, for peculiarities of segmentation are not rare, the inter-position of a whole vertebra is not uncommon, and the suppression of a whole vertebra is known to occur; and it is obvious that the inter-position of a half vertebra or the want of development of half a vertebra would produce a congenital lateral curvature. While reflecting on the production of congenital scoliosis previous to publishing the case, it occurred to me as possible that other defects in the development of the vertebræ might produce even more uncommon spinal deformities. Defects in the development of the neural arches explain the osseous abnormalities of spina bifida, but defects in the development of the bodies of the vertebræ must produce lateral or angular curvature. What these deformities might be can be premised from a consideration of the development of the bones in question. According to Cunningham[2] the ossific centres for the bodies first appear in the lower thoracic vertebra about the tenth week. According to Keith[3] the ossification of the centra begins in the 6th dorsal vertebra at the seventh week of embryo life and proceeds towards the extremities of the spinal column from there, and the ossification of the neural arches begins at the same time, but in the 1st cervical, and proceeds downwards towards the cauda. "An oval nucleus develops in each body. At first it is placed dorsal to the notochord, but subsequently surrounds and causes the disappearance of that structure. Occasionally, however, the primitive centre appears to be formed by a coalescence of two primary nuclei. Support is given to this view by the occasional occurrence of vertebræ in which the body is developed in two lateral halves or in cases where only one half of the body persists" (Turner). We do not need to seek the explanation of the suppression or inter-position of a whole vertebra leading to a shortening or lengthening of the spine with retention of normal axis, but the paragraph just quoted offers the explanation of the suppression or inter-position of a half vertebra leading to the production of a congenital scoliosis. Consideration of the development of the embryo also explains an abnormality of far rarer occurrence, namely, congenital kyphosis. There is no reason to cavil at Cunningham's statement that the body of the vertebra is developed from an oval nucleus situated, in its first appearance, dorsal to the notochord; and it seems conceivable that the ossification of the peri-notochordal cartilage might not take place in the usual way and to the usual extent. If, then, an abnormality did occur, it would not be in the posterior part of the body of the vertebra, where the ossific centre originally appears, but in the anterior part to which ossification extends later. What would happen in such a case is obvious, viz., that the oval nucleus commencing posterior to the notochord would ensure the posterior part of the body of the vertebra being ossified first, and if the ossification did not extend forwards the centrum would be unequally developed antero-posteriorly and one would get a kyphosis. Embryologists do not mention the possibility of a primary centre of ossification appearing in the cartilage anterior to the notochord. The failure of the ossification to extend anteriorly would produce an exact reproduction of the collapse of a vertebral body as caused by disease. It has been pointed out by Ballantyne[7] that disease in the bodies of the vertebræ in the fœtus is not unknown, but it must be in the immense majority of cases merely one manifestation of a much more general affection, and there can be no difficulty in pathological differentiation between a disease and a developmental defect. In looking through the literature of congenital scoliosis and defects of the spine I have not found congenital kyphosis hitherto described, but a case which cannot be otherwise explained was, some three years ago, sent to me by Dr. Burgess of Stanley.

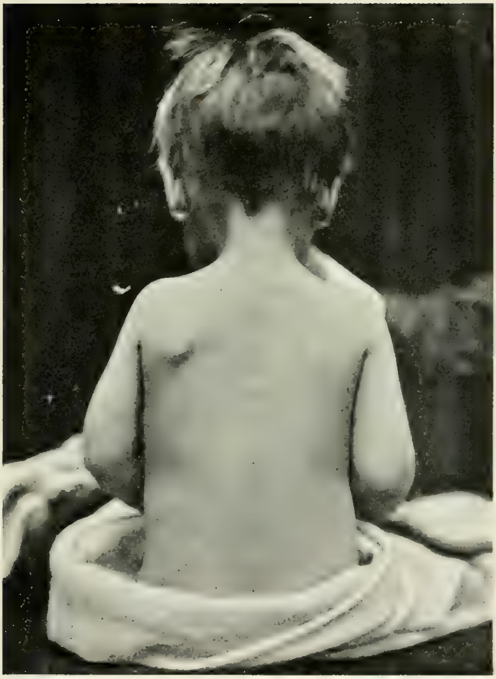


Fig. 1.—Congenital Kyphosis showing the High Scapula.

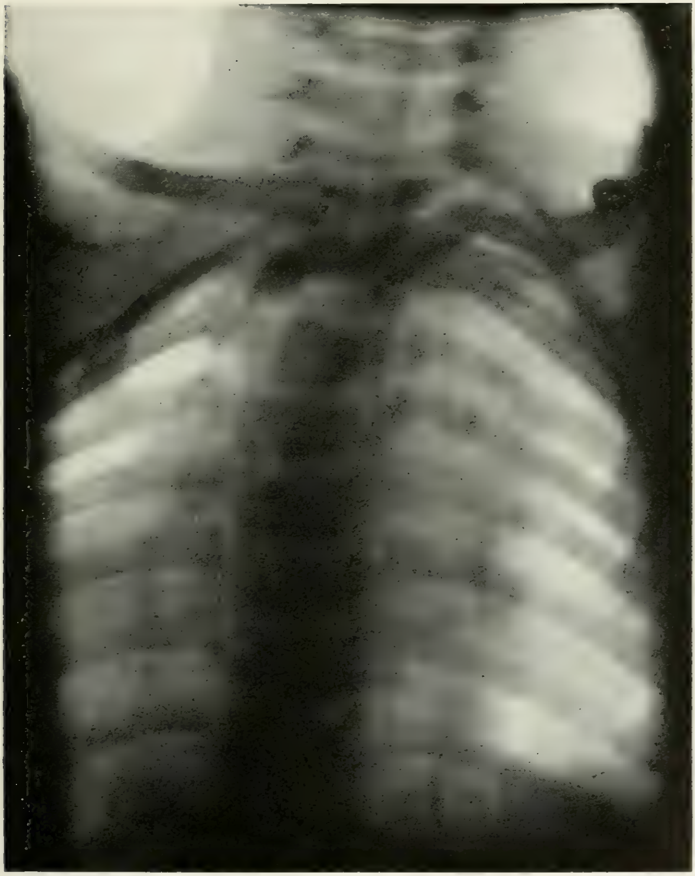


Fig. 2.—Radiogram of Congenital Kyphosis, showing the Presence of a Left Cervical Rib.

The patient was a boy of two years and six months of age. He was the youngest of three; one child had been found dead in bed when ten weeks old, the other child and the parents were well and healthy. The patient was a full-time child, breast fed, walked at fifteen months, cut two lower teeth at six months, but was always a fretful child and required a good deal of nursing. It appeared, however, that he had been always quite strong, and he had no record of illness. When the child was six months old the mother noticed a swelling in the back at the root of the neck and towards the left shoulder, and she thinks it got more obvious as growth proceeded. When he came under my notice in January 1913 the child presented a healthy appearance. He had a fair complexion, wide open blue eyes, pouting lips, and a curiously well-marked droop of the cheeks, reminding one strongly of the appearance of a "Brownie" in a child's picture book. The child walked well, and the deformity could not be observed until he was undressed. He was well nourished, the skin was in good condition, but the child was rather small for his age, though in this relation it must be noted that both parents were under the average stature. The front view of the chest presented nothing abnormal, the skull was asymmetrical, the left parietal sloped more from the sagittal suture, and the right parietal eminence was the more distinct. There was an obvious projection in the upper dorsal spine, and as he sat with his hands symmetrically placed in front of him it was noted that the inferior angle of the left scapula was much more prominent than the right and was placed an inch and a quarter higher on the chest. The spinous processes of the vertebræ appeared to be accurately superimposed, but when one approached the top of the dorsal region there was a prominence about the last cervical spine which was accentuated by what appeared to be a forward displacement of the fifth or sixth cervical vertebra. The left scapula was placed higher on the chest than the right and projected slightly into the neck. It lay rather more obliquely than normal and was not so large as its fellow. There was no abnormal connection osseous or cartilaginous, between the scapula and the spine. The movements of the scapula and the shoulders were quite free and full, but apparently from the obliquity and small size of the scapula the supraspinatus and infraspinatus muscles had not the normal purchase on the humerus.

The parts were radiographed by Dr. Pirie, but of course the details in the shadow cast by the spine are obscured by the shadows of the sternum and clavicles. The high position of the left scapula is obvious. It is associated with an irregularity of the vertebral bodies and of the ribs. As regards the latter there appears to be a cervical rib, and there may be some fusion of the 2nd and 3rd ribs. The third intercostal space in its posterior part is unduly wide as compared with the right. What has happened to the vertebral bodies is more difficult to make out, for no radiogram shows them clearly at the affected part. With the help of the fluorescent screen, however, and examining the parts in various obliquities it appears that the abnormality is in the 1st dorsal or 7th cervical vertebra, and consists in a defective development of the anterior part of the body of either of these two vertebræ. The radiogram seems to show a slight tilting forwards of the upper three dorsal vertebræ as if the abnormal development had affected their vertical axis, but this is entirely overshadowed by the angular curvature at the junction of the dorsal with the cervical spine. It is possible that the development of the anterior segments of the bodies of the immediate subjacent vertebræ may have been secondarily affected by the alteration in the axis of transmission of the weight above the 1st dorsal on account of the bony defect.

One can scarcely include in the same category as the above case "A Case of Congenital Kyphosis" reported by Dr. L. Bernhard,[4] though the title seemed likely to throw some light on the condition. The child was 39 days old, the third child of a healthy family, though the eldest had died "in consequence of abnormal birth." There had been no trouble at the birth of this child, but it "had not cried since birth." There was a kyphosis in the upper part of the dorsal spine extending from the 2nd to the 7th dorsal vertebra, comparatively regularly arched, which could only be slightly straightened by laying the child flat. Bernhard saw the child again six months later when, apparently, defective mental development was obvious, and for a month the child had had recurring twitchings of the trunk "as if the child were bowing." The growth of the skull was defective and there was alleged to be a total synostosis of the skull sutures and the fontanelle. The kyphosis "which was so evident on the first examination is no longer to be observed," but a slight left scoliosis had developed in the mid-dorsal region. Bernhard, in discussing this part of his case, says, "the disappearance of the kyphosis in spite of its earlier relative strength is interesting. We may assume that the lengthy opisthotonic straightening of the back bone had operated on the kyphosis so as to bring about its obliteration and the softened vertebræ had taken on a slight lateral displacement."

A regular dorsal curvature occurring in a congenital idiot, and this curvature disappearing within six months, is surely not to be classed with the case I have just related.

I have in my museum two skulls of congenital idiots the subjects of premature synostosis. In both these children a postural kyphosis of the spine existed, and the restriction of movement in the spine seemed to me to be part of the diplegia with contracture with which each was affected. The kyphosis, as in Bernhard's case, was merely a secondary accompaniment of an extensive neurological congenital defect.

Though I know of no further literature on congenital kyphosis, there is an analogous condition described in the *Medical Record* in relation to the skull, under the term "Basilar Kyphosis: its Relation to Certain Cerebral Deformities," by S. E. Post.[6] "By basilar kyphosis is meant a deformity of the skull homologous with kyphosis in the spine." It is pointed out that though the prominent angle of spinal kyphosis is obviously the spinous processes, the essential deformity lies in the bodies of the vertebræ; and though the possibility of congenital spinal kyphosis is not suggested, the author's observations are made in relation to certain deformities of the skull depending on congenital defect in the development of the basilar process of the occipital bone, the post-sphenoid and the pre-sphenoid. These osseous elements form the os tribasilaire of the skull-base and are homologous with the bodies of the spinal vertebræ, as Virchow originally pointed out. The pre-sphenoid and post-sphenoid bones are anchylosed before birth and constitute the body of the sphenoid, but the occipital and sphenoid do not fuse until the 18th or 20th year, and it is between the sphenoid and occipital (the occipito-sphenoidal articulation) that the deformity or alteration of relationship usually occurs. "Basilar kyphosis is not simply a persistent fœtal trait, it is a distinctly abnormal or pathological condition" the author states, and adds that Ackerman found it in a number of cases of encephalocele.

The main point made by the author in that paper is that the deformity bears a causal relation to certain defects produced by it in the cranial capacity and so on the brain. In congenital spinal kyphosis the symptoms need not be those of pressure on the contents of the neural canal, but it is interesting in my case that the deformity was in association with defects in ribs, and a malposition of the scapula.

In a previous number of the *Edinburgh Medical Journal*[5] I described cases of congenital high scapula which had come under my notice, and I emphasised that such a congenital defect is not uncommonly accompanied by other congenital defects. Thus, there may be spina bifida (vera or occulta), and in one of my cases there was suppression of ribs, but I know of no case published where congenital high scapula has been in association with an angular curvature of the spine. The defects in the spine and the ribs are defects of osseous formation—the defect in the scapula is not a structural one, but a malposition followed secondarily by improper growth in accordance with ordinary physical laws. I possess the skeleton of an extreme case of fusion of ribs, and this fusion is in association with remarkable irregularity of segmentation in the spinal column, several centra being partially suppressed.

The question arises, Is the defect a primary congenital one of the scapular position or one of the vertebræ? The answer to this seems to lie in the chronological sequence of events in the ossification of the bones involved.

I have already stated that, according to Keith, ossification in the bodies of the vertebræ commences in the 6th dorsal at the seventh week and proceeds upwards and downwards from that bone until the ossification of the axis takes place in the fourth month. Should any abnormality occur, it would only be in accordance with what happens elsewhere to find it take place at the transition from the dorsal to cervical vertebræ or dorsal to lumbar. On the other hand the scapula is, in the human embryo, originally cervical, and descends during the second month, to reach its final position in the third month. The change in position of the scapula is intimately associated with the elongation of the cervical region, and is accompanied by such alterations in the muscles and nerves that it is likely more than one factor may prevent the scapula's descent. It is nothing that the primary centre of ossification for the body of the scapula appears in the second month of fœtal life, for in high scapula we have to deal not so much with when its ossification commences as with when its translation from the neck to the thorax takes place. It seems credible at any rate that interference with the ossification of the vertebræ, which commences at the seventh week, would be more likely to interfere with the descent of the scapula which commences during the second month, than that any abnormality in the growth of the scapula should interfere with the ossification of the spine. During the eighth week of intra-uterine life the ribs are already marked out by cartilage, and it cannot be denied that in my case the presence of a cervical rib or of rib-fusion might interfere with the position of the scapula though not in any way influencing the vertebral development.

REFERENCES.—[1] Greig, D. M., "Case of Congenital Scoliosis," *Edin. Med. Journ.*, September 1910. [2] Cunningham, D. J., *Text-Book of Anatomy*, Edinburgh, 1902, p. 88. [3] Keith, A., *Human Embryology and Morphology*, London, 1913. [4] Bernhard, L., *Archiv für Kinderheilkunde*, Stuttgart, 1900, p. 31. [5] Greig, D. M., "On Congenital High Scapula," *Edin. Med. Journ.*, March 1911. [6] Post, S. E., "Basilar Kyphosis," *Med. Record*, New York, 21st December 1899, p. 681. [7] Ballantyne, J. W., *Manual of Antenatal Pathology*, Edinburgh, 1902.

SOME OBSERVATIONS ON THE USE OF HYPOCHLOROUS ACID (EUSOL) IN GUNSHOT WOUNDS.

By ALEXANDER MILES.

However conclusive the results of laboratory experiments may be as to the efficacy of a new antiseptic, it is by no means easy to estimate its clinical value, except from the observation of a large number of similar cases. In civil practice suitable cases come only at intervals, and the wounds vary so widely in their characters that comparative observations are difficult. The personal equation also enters into the problem. The surgeon of experience is apt to retain a bias in favour of the agents on which he has come to rely, while the younger worker may exhibit an undue optimism towards the latest novelty. Attempting to avoid either of these attitudes, I have analysed the results obtained by the use of hypochlorous acid, in the form of eusol, in a series of cases recently treated by me in one of the wards allocated to military cases in the Edinburgh Royal Infirmary.

Nature of Cases Observed.—For this purpose I have selected the cases of sixteen soldiers who were all wounded in the same series of engagements, and who arrived at the Infirmary, in the same convoy, eight days later. The wounds were therefore approximately of the same duration, and the patients had had similar experiences after being wounded. All the wounds had been previously treated with antiseptics, and all were grossly infected with pyogenic and saprophytic organisms.

None of the wounds could be classed as dangerous; six of them were considered serious; seven of moderate severity; and three as slight. This classification is of course arbitrary, and applies only to the class of case which reaches a home hospital within a comparatively short period. In a casualty clearing station they would have been very differently classified.

With regard to the degree of sepsis present, nine were considered badly infected, five were moderate, and two slight.

In two cases missiles had been removed at Base hospitals, and in one case a shrapnel bullet was still present at the bottom of a suppurating track.

The nature and site of the wounds varied greatly. The most serious case was an amputation stump of the thigh; the other serious cases included a deep lacerated wound through the muscles of the thigh, two cases of similar wounds involving the muscles of the back, a compound comminuted fracture of the forearm, and a lacerated wound involving the parotid gland and mandible. The less serious lesions included perforating wounds of the forearm, thigh, and leg, a glancing wound of the abdominal wall, etc.

The majority of the wounds were inflicted with rifle or shrapnel bullets, others with fragments of shell, and one by a hand grenade.

Methods of Employing Eusol.—The preparation employed was "eusol," which contains approximately 0·5 per cent. hypochlorous acid. It is made by dissolving 25 grammes of a powder ("eupad"), composed of equal parts of chloride of lime and powdered boracic acid, in a litre of water, and filtering. The solution costs approximately twopence a gallon.

Open surface wounds were bathed with full strength eusol once or twice daily, and dressed with pads of gauze soaked with the solution, with a sheet of mackintosh over the gauze to retain the moisture and prevent escape of the volatile hypochlorous acid.

Tunnelled or burrowing wounds were syringed out twice a day with eusol, packed with gauze saturated in the solution, and covered with soaked gauze pads and mackintosh.

Deep wounds were kept constantly saturated with eusol by means of a simple "dripper" (Fig. 1) devised by my house-surgeon, Mr. J. B. Hogarth, which consists of a wide-mouthed bottle with two holes in the cork, one to admit air, the other to transmit a piece of rubber tubing, of the calibre of a No. 10 catheter, through which is threaded a wick composed of several strands of stout crochet thread. The bottle is suspended from a bed-cage, or placed on a table beside the bed, at a level of about a foot above the wound. The free end of the tube is inserted into the depths of the wound. In this way a continuous capillary flow of eusol is conveyed to the tissues and keeps the wound and the dressing constantly soaked. From a 2-ounce bottle a six hours' supply of the solution can be delivered. To protect the bed clothes a large mackintosh sheet is put under the part of the body implicated. The wick should be considerably longer than the rubber tube, the excess being kept in the bottle, as the end which is in the wound is apt to get clogged and must be cut off from time to time.

Results and Conclusions.—1. In the majority of our cases we found that the sepsis was quickly overcome—in 48 hours there was a marked diminution in the quantity of the discharge and a complete disappearance of any offensive odour which may have been present. In from four to five days the wound was clean and was covered with granulations.

This was the case, for example, in an amputation stump which was suppurating freely on admission. The limb had been injured by the explosion of a shell, and the amputation was performed at the Base through the lower third of the thigh by the circular method three days later. The soft parts had retracted to some extent, the bone was protruding, and the thigh was inflamed and œdematous.

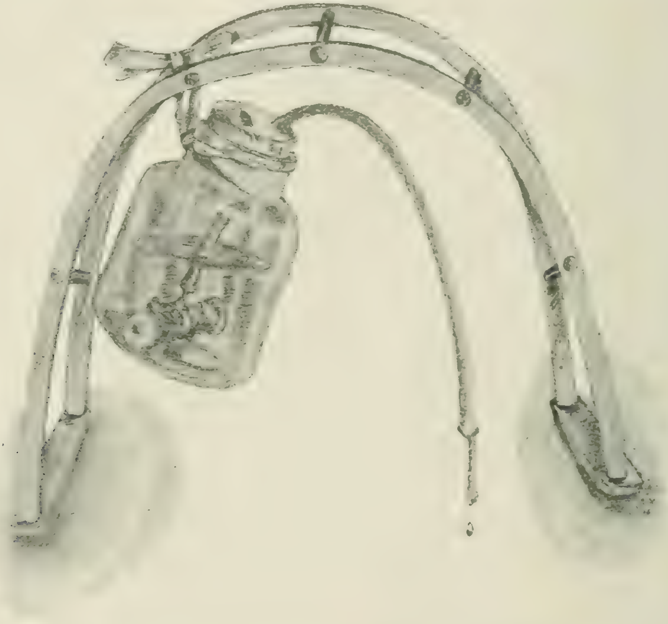


Fig. 1.—Dripper for Conducting Eusol Solution into a Wound; suspended from Bed-cage. (From a sketch made by Private Wm. Leafhead, R.A.M.C.)

In another case two deep wounds of the back cleaned up and healed with remarkable rapidity. The patient was struck by a piece of shell while lying on his face. The missile had entered below the left scapula, and after ploughing through the tissues obliquely downwards had emerged in the small of the back on the right side. At both wounds the integument was contused and lacerated, and the muscles were considerably torn. The whole length of the wound was grossly infected and was suppurating freely, the pus being acrid and offensive. There was marked toxæmia—the temperature ranging from 97° to 102° F., the pulse from 70 to 96, and the respiration from 20 to 24. Within a week the sepsis was overcome, and the wound was covered with granulations of a deep claret colour. Thereafter cicatrisation rapidly took place.

Another case in which we had reason to be satisfied with the results of this treatment was that of a man who had been struck over the angle of the mandible by a piece of shell which lodged in the parotid gland and bruised the bone. The missile was removed at the Base hospital. The wound exuded a great quantity of pus mixed with saliva. Under eusol the active suppuration ceased in four or five days and the wound began to cicatrise. Saliva continued to escape for some weeks from a small opening in the scar, but eventually ceased.

In a lacerated wound implicating the extensor muscles of the thigh in close proximity to the knee-joint the "drip method" proved very satisfactory. A piece of shrapnel had been removed at the Base hospital and the wound left open. On admission it was suppurating freely, the thigh was œdematous, and there was swelling of the knee-joint. In three or four days suppuration had ceased, the eusol was discontinued, and the wound rapidly cicatrised.

Similarly, in a case of compound comminuted fracture of the ulna, with a large external wound, the suppuration ceased within a few days and the bone united without any necrosis. The ulnar nerve became implicated in the cicatrix and had subsequently to be freed.

2. In three cases the suppuration continued in spite of the eusol treatment, and improvement began when the treatment was changed, in one case to boracic poultices, in the others to ichthyol and glycerine. In none of the cases was any foreign body present, either in the form of metal or of fragments of clothing. They were all, however, perforating wounds with comparatively small openings at each end and a tunnel some inches in length between.

The failure of the eusol was doubtless due to the fact that, except during the syringing of the wound at each dressing, the antiseptic did not reach the infected tissues, and being a volatile substance the hypochlorous acid was not long enough in contact with the organisms to destroy them. This explanation is supported by the fact that in another case, almost identical with one of the failures, but in which we were able to pack the track of the wound with moist gauze, healing took place rapidly. It is possible that the benefit which followed the use of poultice dressings and ichthyol and glycerine may have been due to the "lymph lavage" which they induced.

There seems little doubt that to be efficacious the hypochlorous solution must be brought into direct contact with the infected tissues, and that a more or less continuous supply must be provided.

3. The action of hypochlorous acid in stimulating the growth of capillary loops is a very striking and important one. Even in deep and irregular wounds that have been grossly infected the formation of granulations is evident in three or four days, and the exposed tissues are usually well covered with granulation tissue within a week of commencing the treatment. The granulations tend to assume a darker colour than is usual with other antiseptics, being of a deep claret hue rather than red or pink. If eusol dressings are continued for some days longer, the granulations may become exuberant without being œdematous, and sometimes they exude a brown-stained serum.

Further observation is necessary to determine what *rôle* this stimulation of granulations plays in arresting and eliminating the infective process, and at what point it should be controlled to ensure the maximum action in this direction.

There is evidence that the infection may persist in an attenuated form for some days after the purulent discharge has ceased and the wound has become covered with granulations, as we have noticed that if dry dressings are substituted for eusol soaks, say on the third or fourth day, the sepsis again asserts itself, and that renewal of the eusol dressings at once checks it. We therefore continue the moist eusol dressings for some days after the wound has cleaned up and the granulations have appeared, and substitute a dry dressing if the granulations begin to become spongy or friable.

4. The conversion of granulations into cicatricial tissue goes on rapidly, and the resulting scar is usually soft and pliable. This series of cases does not afford sufficient evidence of the influence of eusol on the growth of epithelium to warrant any definite opinion, but the point is one on which further observations should be made.

5. The subsequent management of the wound varies with the conditions present. For large open surfaces, such as amputation stumps, we have found the alternation of scarlet-red ointment and normal saline solution, day about or each for two days, the most satisfactory method. The continuous use of the scarlet-red

ointment probably induces a more rapid growth of epithelium, but the covering is thin and tends to break down. For tunnelled wounds, injections of hydrogen peroxide and packing with bismuth gauze are useful.

6. We can confirm the general experience that eusol causes no injurious irritation of the tissues in the wound or of the surrounding skin. Nor does it appear to be toxic by absorption or to cause pain or other discomfort.

7. From these observations, as well as from a much wider experience we have had in its use, we are satisfied that in eusol we have an efficient and safe antiseptic agent which more generally meets the requirements of the military surgeon than any one of those previously available.

CLINICAL STUDIES. VIII.—LUNG LESIONS IN AORTIC ANEURYSM.

By BYROM BRAMWELL, M.D., F.R.C.P.E., LL.D., F.R.S.E., Consulting Physician, Royal Infirmary, Edinburgh; Physician, Chalmers Hospital, Edinburgh.

ANEURYSMS of the thoracic aorta, especially of the descending portion, which press upon the root of the lung and obstruct the main bronchus or bronchi, are apt to produce various changes in the lung (collapse, bronchiectasis, chronic pneumonia, and, in some cases, localised gangrenous areas around the bronchi), the diagnosis of which is often attended with very great difficulty, more especially when the symptoms and signs of aneurysm are slight or absent altogether. A number of cases of this kind have come under my notice. Pleuritic effusion, malignant disease of the lung, cirrhosis of the lung, and phthisis are in some cases very closely simulated. I append notes of some illustrative cases.

Further, in some cases tuberculosis develops in the lung which is collapsed or affected with chronic pneumonia. In other cases in which an aortic aneurysm is associated with tuberculosis of the lung the association is probably an accidental one; in such cases the phthisis cannot be regarded as the result of lung changes induced by the aneurysm.

Cases in which an aneurysm presses upon the lung, produces localised pleurisy, and then makes its way into the lung tissue are comparatively common; in these cases repeated attacks of hæmoptysis, due to the rupture of the aneurysm into the lung tissue, are apt to occur. I have seen quite a number of cases of this kind, in some of which the attacks of hæmoptysis were spread over long periods of time.

In my book on the *Heart*, published in 1884, I refer to the lung lesions produced by aneurysmal pressure on the root in the following terms:—

"The pressure of the aneurysmal sac on the lung tissue very frequently produces local pleurisy, in consequence of which adhesions are formed which bind the lung to the thoracic wall. When the lung tissue itself is pressed upon and irritated, cough, expectoration (mucous, muco-purulent, or bloody in character), and shortness of breath (seldom amounting to dyspnœa) are usually present. If the symptoms and signs of aneurysm are absent or indistinct, the observer may perhaps suppose that he is dealing with a case of phthisis. An aneurysm which is pressing upon the lung may ultimately burst into the lung tissue; the fatal rupture is in some cases preceded by blood-tinged or rusty expectoration, a symptom which should always excite grave apprehension when it occurs in the course of this affection (*i.e.* of aneurysm).

"Pressure on a main bronchus usually produces considerable dyspnœa, which in some cases is paroxysmal; an extremely irritable and troublesome cough, which is generally attended with a copious, thin, watery expectoration, is often present. A wheezing sound can sometimes be heard when the stethoscope is placed over the position of the compressed bronchus. Pressure on a main bronchus prevents the free entrance of the air into the lung; the respiratory sounds are consequently indistinct on the affected side" (p. 705). . . . "When the aneurysmal sac presses on the *right bronchus*, and interferes with the free entrance of air into the right lung, the respiratory murmur is fainter on the right side than on the left, the percussion-note over the right side of the chest is usually impaired and raised in pitch, and a wheezing, whistling sound is, in some cases, heard over the position of the compressed tube. Pressure on the main bronchus of the left side is accompanied by corresponding alterations in the left lung.

"Pressure on the *root of the lung*, more especially, it is supposed, on the *branches of the pulmonary plexus of nerves*, is occasionally followed by destructive inflammation of the lung tissue. In some of these cases the lung is found collapsed after death, and studded with small abscesses. In a case which has quite recently come under my observation in the post-mortem theatre the lower lobe of the left lung was consolidated and riddled with cavities, the result of the pressure of the sac of a large aneurysm; hæmoptysis, which ultimately proved fatal, was caused by the rupture of the sac into one of these cavities; the upper lobe of the left lung and the right lung were, with the exception of emphysema, perfectly healthy. In cases of this description the physical signs of collapse or breaking down of the lung may sometimes be observed during life" (p. 717).

CASE I.—*Large Aneurysm of the Descending Thoracic Aorta, the Cavity of which was almost Completely Filled with a very Dense Old Clot; Complete Consolidation of the Left Lung due to the Pressure of the Aneurysm on the Root of the Left Lung and Left Bronchus; Physical Signs Suggestive of Pleuritic Effusion and Malignant Disease of the Lung; The Sac of the Aneurysm Aspirated on Three Separate Occasions*, 20, 20, *and* 10 *Ounces* *of Pure Blood being Withdrawn.*—Male, aged 52, was seen in consultation with the late Dr. D. Menzies and the late Dr. G. A. Gibson on 31st October 1908.

History.—Five weeks before I saw the patient he began to complain of shortness of breath and cough; Dr. Menzies could detect no physical signs of importance.

A month later he became very much worse—great difficulty in breathing, marked cyanosis, frequent tickling irritable cough, little or no expectoration. Physical examination now showed—Complete dulness over the whole of the left chest, both back and front; bronchial breathing over the upper part of the left chest; absence of the breath sounds, vocal resonance and fremitus over the lower part of the left chest. These physical signs were, of course, suggestive of a rapidly developed and very large pleuritic effusion. The left chest was aspirated. Two of the punctures which were made resulted in dry tappings; on the third aspiration 20 ozs. of pure blood were withdrawn; the blood spurted into the bottle of the aspirator with each pulsation of the heart; it did not flow freely.

On the following day the physical signs were the same. The chest was again aspirated, with exactly the same result—nearly 20 ozs. of pure blood were withdrawn from the same position; the blood again spurted with each pulsation of the heart into the bottle of the aspirator.

The diagnosis was malignant disease of the lung with a blood-cyst.

I saw and examined the patient a few days later. He complained of great distress and dyspnœa, and was markedly cyanosed; the pulse was quick, irregular, and intermittent. The left (affected) side of the chest measured an inch and a half more than the right side at the level of the nipples. The whole of the left chest from the apex to the base of the lung was absolutely dull on percussion; bronchial breathing was present over the upper half of the lung; the breath sounds, vocal resonance, and fremitus were absent over the lower half.

The patient was again tapped in the same position from which the blood had been previously withdrawn—at a point between the 6th and 7th left ribs, slightly internal to the inferior angle of the left scapula. On this occasion only 10 ozs. of blood could be withdrawn; it was again quite pure and of a bright red colour; it formed a solid clot after it had been left for a few minutes in the bottle of the aspirator; it again squirted out with each pulsation of the heart into the bottle of the aspirator. The withdrawal of the blood gave the patient very great relief—the cyanosis became less marked, the pulse became slower and fuller and much less irregular.

Diagnosis.—It was obvious that (1) the case was not one of pleuritic effusion; (2) the whole of the lung was consolidated; and (3) a cyst or sac containing pure blood was situated at the point where the aspiration had been performed. The most probable condition seemed to be malignant disease of the lung, with a blood-cyst in close contact with the sac of the pericardium; this, we thought, might explain the manner in which the blood was pumped into the bottle of the aspirator by the pulsation of the heart; but all of us who saw the case felt that this diagnosis was a very uncertain one. The rapid way in which the consolidation of the lung developed—within the course of three or four weeks at most—was very unusual in a case of malignant disease of the lung; there were no enlarged glands; the characters of the blood (pure and bright red) which was withdrawn were not like those of blood contained in a cyst with a new growth.

During the course of our consultation Dr. Menzies suggested that we might perhaps have got into the sac of an aneurysm. If this were so it was difficult to see why the bleeding should have stopped after 10 ozs. had been withdrawn, and when powerful suction was being applied by means of the aspirator. But further consideration led me to think that this diagnosis was probably correct, and that the consolidation of the lung was due to rapid pneumonic infiltration of the lung, the result of the pressure of the aneurysm on the left bronchus. I had seen several cases in which chronic pneumonia resulted from this cause, but in all of them the consolidated lung was retracted, and the affected (left) side of the chest smaller than the opposite (right) side. On the day following the consultation I wrote Dr. Menzies indicating this view.

Post-mortem Examination.—The patient died a few days after the consultation. A very large ovoid aneurysm involved the greater part of the descending thoracic aorta; the aneurysmal sac was almost entirely filled with a dense, nodulated clot (see Fig. 1), which was not firmly adherent to the sac wall as the laminated clot of an aneurysm usually is. The whole of the left lung was consolidated and in a condition of chronic pneumonia; it was bound to the chest wall by somewhat dense pleuritic adhesions; the aneurysmal sac had compressed the root of the left lung and left bronchus.

Remarks.—At the consultation the patient stated, in answer to my question if he had suffered from pain in the back, that for the past two or three years he had had some pain in the back. I should, I feel, have attached more importance to this statement, for in a strong, robust-looking, vigorous man, such as this patient had been before his last illness, pain in the back of this description is very suggestive of aneurysm. Further, aneurysms of the descending thoracic aorta are often very difficult to detect even when they are of considerable size—several cases have come under my observation in which the most careful physical examination failed to detect the presence of aneurysms of this description. Of course we now have in the X-ray examination an additional means of diagnosing such cases, and had this patient been X-rayed the true nature of the case might perhaps have been apparent; at all events, there would have been a distinct shadow in the position of the aneurysm which would have suggested either an aneurysm or a solid intrathoracic growth.

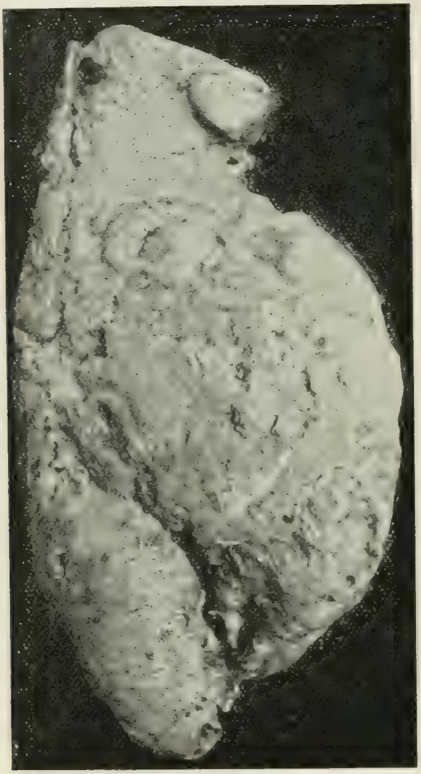


Fig. 1.—The Dense, Firm, Nodulated Clot, which almost entirely filled the Aneurysmal Sac in Case I. The actual size of the clot represented in the figure was 6½ inches × 3¼ inches; circumference at thickest part, 8½ inches.

One of the most interesting points connected with the case is that strong suction with the aspirator only succeeded in removing a comparatively small quantity of blood—10 ozs. on the last occasion on which the aneurysmal sac was tapped. This was no doubt due to the fact that the sac of the aneurysm was almost entirely filled with dense clot.

Case II.—*Chronic Pneumonia due to the Pressure of a Small Aneurysm* *on the Root of the Left Lung and Left Bronchus.*—Female, aged 40, was admitted to the Edinburgh Royal Infirmary on 1st October 1894 suffering from pain in the left chest aggravated by coughing, shortness of breath, fever, night-sweating, and emaciation.

Previous History.—The present illness had commenced a month previously as the result, the patient thought, of catching cold. The attack was ushered in by a shiver; this was followed by spitting of blood, cough, and shortness of breath. The hæmoptysis continued for several days; the blood was bright red in character, and copious in amount.

The patient stated that before the attack commenced she had been in good health. After her death, however, I ascertained from her husband that for some months before the acute onset she had suffered from shortness of breath on going upstairs and on lying down at night. I further learned that thirteen years before her death she had a very severe illness, some lung affection, the exact nature of which he did not know. During this illness she was confined to bed for six months. The attack was probably a pleurisy with effusion. I ground this opinion upon the condition of the left lung which was found after death. But, be that as it may, the patient had apparently completely recovered, and remained well until the present attack commenced. During the past thirteen years she had never been very robust, but had gone through a great deal of hard work; she was naturally an active woman.

Condition on Admission.—The patient was very pale and thin. She looked extremely ill and exhausted. The appetite was bad. The breathing was greatly accelerated, even while at rest; the number of respirations varied considerably from day to day—38 to 60 per minute. There was a good deal of dry irritating cough, but almost no expectoration. The fever was considerable, and it presented the up-and-down character which is so suggestive of phthisis or septic absorption (see Fig. 2). In addition, the patient suffered from profuse night-sweats; and on more than one occasion, both before and after her admission to hospital, there were rigors.

Physical Examination.—The left chest was immobile, and, over the back, absolutely dull from the top to the bottom. The vocal fremitus could still be perceived, but was markedly diminished. The left chest measured one inch less than the right at the level of the nipples. Over the base of the left lung posteriorly no respiratory sounds could be heard; in the axillary region faint but distant bronchial breathing was audible; over the root of the lung the breathing was markedly bronchial.

Anteriorly, there was absolute dulness below the clavicle; in the supraclavicular region the percussion-note was high pitched and Skodaic in character. In the supraclavicular region the breathing was loud, bronchial, and superficial; below the clavicle faint distant bronchial breathing was audible.

During the whole time that the patient was under observation no moist sounds were heard in the left lung.

The right lung was voluminous; its anterior border extended considerably beyond the middle line.

The impulse of the heart was very extensively seen over the front of the left chest; the apex was displaced upwards and outwards; it occupied a point above and slightly to the left of the nipple; the left lung was obviously retracted, the heart exposed and pulled upwards and to the left. The heart sounds were normal; the aorta and superficial vessels appeared to be normal; the aortic second sound was not accentuated. The pulse was quick and weak.

The tongue was dry and furred. The abdominal viscera appeared to be normal, but throughout the illness there was a tendency to diarrhœa. The urine was high-coloured and loaded with urates, but not albuminous.

Subsequent History.—On 29*th October* the patient was seized with an acute pain in the left calf; the left leg below the knee became swollen; the calf was intensely tender. It was obvious that the deep veins had become obstructed. On 11*th November* a similar condition developed on the right side of the neck; and on 24*th November*, in the left axilla. In all of these situations acute pain, localised tenderness, and swelling, obviously the result of obstruction of the veins, were developed.

In addition, attacks of hæmoptysis occurred on the following dates:—On 10*th October* (3 ozs.), on 28*th October* (2 ozs.), on 30*th October* (40 ozs.). On all of these occasions the blood was bright red, slightly frothy, but not intimately mixed with air as the blood coming from the deeper parts of the lung usually is; it was spat up in nummulated masses, which ran together, forming one large clot in the vessel into which it was expectorated. The last bleeding proved fatal in the course of a few minutes.

The course of the temperature during the latter part of the illness is shown in Fig. 2.

The treatment consisted in feeding and stimulation, the administration of quinine, cardiac tonics, the tincture of the perchloride of iron, and intestinal astringents to arrest the diarrhœa, which was occasionally troublesome.

The patient died on 2nd December 1894.

Post-mortem Examination.—This was made on 3rd December, by Dr. Robert Muir, permission being limited to the thorax.

Thorax. — The right pleura was free from adhesions. No fluid.

The left lung was of small size, partially collapsed, and lay at the posterior part of the cavity. It was bound down all over by very firm fibrous adhesions. As a result, the whole of the anterior and part of the left surface of the pericardium was uncovered, and lay directly in contact with the chest wall.

The *heart* weighed 9 ozs., and was rather small and atrophied.

The *right lung* weighed 1 lb. 2 ozs.; it was voluminous and showed extensive diffuse emphysema, fine in character. The whole lung was studded with minute hæmorrhages, even throughout the anterior emphysematous portion. These hæmorrhages were small, $\frac{1}{8}''$ to $\frac{1}{4}''$ in diameter, though in places they had run together, and very uniformly distributed. The posterior part of the lung was somewhat congested. The bronchi contained an abundant red gelatinous material—blood mixed with mucus—the blood having apparently come from the lung, not *vice versâ*.

The *left lung* weighed 1 lb. 8 ozs. It was small, greatly collapsed, and covered on the surface with a very dense, though not very thick (maximum = $\frac{1}{8}''$), fibrous membrane. The lung was consolidated throughout, and on section showed a mottled-grey appearance—an advanced stage of chronic pneumonia. In the lower lobe especially there were numerous small areas and points of a yellowish or white colour, suppurative in nature. This condition was only slightly present in the upper lobe. There was slight interstitial fibrous change at places. The small bronchi contained purulent pinkish material, and the large bronchi red gelatinous material, as in the other lung.

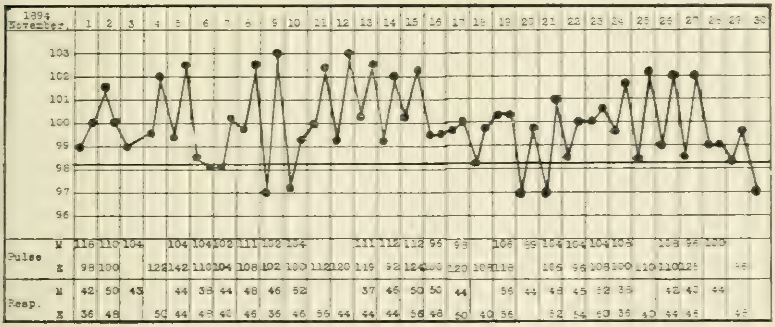


FIG. 2.—Chart showing the Course of the Temperature, Pulse, and Respirations in Case II.

The *trachea* also contained this blood-stained material, but was otherwise normal.

One or two of the *smaller branches of the pulmonary artery* in the right lung contained firm, pale thrombi, partly adherent to their wall. There was no special change in the lung tissue corresponding to these vessels.

The main artery and largest branches were free from thrombus.

Aorta.—There were some small spots of atheroma in the aortic arch, and at the end of the arch there was a small aneurysm about the size of a walnut, projecting to the inner side and coming into contact with the main bronchus of the left lung, just below its point of origin from the trachea. This aneurysm was very thin-walled and was lined with firm, pale thrombus, somewhat irregular on the surface. From the thrombus, which lined the cavity of the aneurysm, a broad band of firm, pale thrombus extended downwards along the wall of the descending thoracic aorta for three inches. This thrombus was adherent to the wall, which, so far as it was examined, was quite healthy. No aperture of perforation between the aneurysmal sac and the bronchus was detected.

Veins.—There had been venous thrombosis from time to time. The left brachial vein was examined and found to be filled with firm, dark thrombus, at places red and somewhat granular. The left arm was not swollen.

The left *brachial artery* was free from thrombus.

Microscopical Examination.—Two portions of the *left* (consolidated) *lung* showed similar changes. The pleura was much thickened and showed the usual appearances. The interlobular septa and general framework showed well-marked fibrous thickening, and the walls of the air vesicles also showed a similar though less marked condition. The condition of the air-cells appeared fairly uniform, all being filled up with catarrhal cells mixed with a few leucocytes and granular matter. There was practically no fibrin in any of the air-vesicles. At places here and there were patches of semi-purulent material with interstitial thickening around—a chronic suppurative condition in relation to the small bronchi. These suppurative areas evidently corresponded to the yellowish-white patches seen on naked-eye examination. In the pus there were exceedingly few micro-organisms, only a few scattered micrococci and bacilli could be found. There was no acute suppurative or pneumonic condition, all the changes being subacute or chronic in character. There was no trace of tubercle.

The *right lung* showed small hæmorrhages into the air vesicles, apparently from the capillaries in their walls, not from the bronchi. The hæmorrhages were comparatively recent.

Some of the small branches of the pulmonary artery contained well-formed thrombi, the existence of which may have had a relation to the occurrence of the hæmorrhages.

Remarks.—The diagnosis in this case was very difficult. The extensive area over which the impulse of the heart could be seen and felt, the upward displacement of the apex-beat towards the left shoulder, and the voluminous (hypertrophied) condition of the right lung showed that the left lung was retracted, while the marked dulness and absence of breath sounds and of vocal resonance and fremitus at the base of the left chest were suggestive of fluid. An exploratory diagnostic puncture into the left chest was practised on several occasions and in several different situations (seventh, fifth, and third interspaces), but no fluid was found; portions of lung tissue which were removed did not contain any cellular elements suggestive of a malignant growth.

The left lung was obviously contracted and also consolidated, but the exact nature of the consolidation was not clear. A contracted condition of the lung the result of an old pleurisy, a cirrhotic contraction of the lung, and malignant disease of the lung suggested themselves to my mind; but none of these conditions *per se* would satisfactorily account for all the symptoms and physical signs which were present. The fever, rigors, sweating, hæmoptysis, and profound constitutional disturbance showed that some acute process was developing.

The blood which is expectorated in cases of malignant disease is very rarely, never in my own experience, very copious in quantity and is usually dark rather than bright in colour. Now, in this case, the hæmoptysis which recurred from time to time was remarkably bright and arterial in character, and on more than one occasion very copious in amount. The fever, rigors, and sweatings were not likely to be due to malignant disease, unless some inflammatory or septic lesion was also present. There were no signs or symptoms suggestive of breaking down of the lung tissue.

Some of the features of the case seemed to me to favour a cirrhotic condition of the lung, on the top of which a tubercular or chronic inflammatory process had become developed. I have seen several cases in which tubercle and frequent and copious hæmoptysis developed in cases of cirrhosis of the lung, or were engrafted, so to speak, upon a contracted lung, the result of an old pleurisy.

The only supposition which seemed to afford a reasonable explanation of the absence of moist sounds and of breath sounds in the consolidated lung was blocking of the left bronchus; and I find from the notes of the case that on 21st October the following diagnosis was entered in the case-book:—"Retraction of left lung; consolidation of left lung; blocking of bronchi (?); localised pus formation, which has not been reached by the diagnostic punctures, but this is very doubtful."

The difficulties in diagnosis did not disappear as the case progressed—in fact, rather the contrary. The patient was under close observation for eight weeks. During this time the progress of the disease was steadily downwards. The patient became more and more anæmic; the fever, sweating, and rigors continued; the physical condition of the left lung remained very much the same, though the contraction seemed to increase rather than diminish; and no physical signs indicative of disease were developed either in the heart, the right lung, or any of the other organs.

Now, when we take into account the lesions which were found post mortem, the explanation of the clinical phenomena seems clear enough.

The patient had obviously suffered thirteen years before her death (when she had been confined to bed for six months with a lung affection) from a pleurisy, which had produced a dense fibrous thickening of the left pleura, and which had probably led to some retraction of the lung. But this condition was a chronic one to which the system had completely accommodated itself, for, as the history shows, it did not for many years seriously interfere with the health or activity of the patient. After this long illness she had regained her health, and although never very robust, had been able to lead a busy and active existence.

Then the small aneurysm of the descending thoracic aorta had developed, and had compressed the left bronchus and root of the left lung, preventing the entrance of air into the left lung and the exit of expectoration from the left lung. It is well known that an aneurysm which presses on the bronchus and the root of the left lung is apt, perhaps by interfering with the nerve supply, to produce a condition of consolidation and inflammation—in fact, in some cases in which the pressure is rapidly developed, a gangrenous condition of the lung. In this case the process had not advanced so far as gangrene. But the pressure on the root of the lung and the blocking of the bronchi had produced a solid œdema and diffuse chronic inflammation, with purulent formation in some of the air-cells and minute bronchi; the whole lung was, in fact, in a condition of chronic pneumonia.

The absorption of some toxic material from the inflamed lung was the only apparent cause of the fever and constitutional disturbance.

The plugging of the bronchus, which prevented the entrance of air into the lung, accounted for the absence of moist sounds and of breath sounds.

The hæmoptysis was probably, I think, due to the rupture of the aneurysm into the compressed bronchus, but the point of rupture was not found at the post mortem; the character of the hæmoptysis exactly corresponded to that which results from bleeding from an aneurysmal sac.

The recurring thromboses of the veins were probably the result of absorption of septic material from the purulent lung.

The only pathological fact which it is difficult to explain is the presence of the partly adherent thrombi in some of the smaller branches of the pulmonary artery in the lower lobe of the right lung. But it must be remembered that in this case there seemed to be a tendency to clotting all through the body. Several of the veins were plugged, and the very remarkable thrombus which had formed at the healthy part of the descending thoracic aorta immediately below the aneurysm showed this tendency to clotting in a very striking way. The firm thrombi in the branches of the pulmonary artery were probably not embolic; they probably had been slowly and gradually developed, as the clot in the descending thoracic aorta evidently had been.

In conclusion, I must confess that during life I did not suspect the presence of an aneurysm. There were no symptoms or physical signs indicative of aneurysm; in fact, quite the contrary. The appearance of the patient, the fever and anæmia, were indicative of a suppurative or tubercular process rather than anything else. The heart, aorta, and peripheral arteries were all, so far as could be judged during life, healthy. The patient was a woman, and her whole physical condition strongly contradicted the supposition of aneurysm.

Case III.—*Large Aneurysm of the Descending Thoracic Aorta; Pressure on the Root of the Left Lung and Left Bronchus; Consolidation of the Left Lung.*—J. F., aged 49, brass-moulder, admitted to the Edinburgh Royal Infirmary on 3rd June 1911 complaining of severe pain in the back and lower part of the left chest of five years' duration. The physical signs were indefinite; the presence of an aneurysm of the descending thoracic aorta was suspected. The patient was discharged on 15th June 1911 improved.

Admitted to Chalmers Hospital on 13th October 1912 worse—pain in the back more marked, especially behind, opposite the 10th and 12th ribs in line of the scapula; it is increased on exertion; is short of breath on exertion; difficulty in swallowing has developed recently. Since his discharge from the Royal Infirmary the patient has lost weight (10 lbs.).

Physical Examination.—Marked dulness over the upper part of the manubrium sterni and to the left (2nd and 3rd interspaces). Aortic second sound loudly accentuated, especially over the dull area.

X-ray examination shows a large pulsating shadow (aneurysm) in the position of the descending thoracic aorta.

Impaired percussion over the whole of the left lung, especially marked behind between the spine and the scapula. The breath sounds over the left lung are faint and suggestive of pressure on and obstruction of the bronchus. No moist sounds audible; no sputum.

23rd December 1912.—Patient discharged at his own request. He died suddenly at home on 15th January 1913, owing to the rupture of the aneurysm into the pleural sac.

Post-mortem Examination.—Left pleura filled with blood due to the rupture of an aneurysm. Large aneurysm of the descending thoracic aorta, fusiform in shape. The root of the left lung and left bronchus compressed; the œsophagus pushed to the right and curved over the aneurysm. The left lung was adherent to the aneurysm, and consolidated throughout with collections of pus in the small bronchi (chronic pneumonia). There was no tubercle, and no breaking down of the lung tissue.

CASE IV.—*Aneurysm of the Thoracic Aorta; Pressure on the Root of the Right Lung and Obstruction of the Right Bronchus; Retraction and Consolidation of the Right Lung; Retained Secretion in the Bronchi; No Tubercle.*—D. G., aged 66 warehouseman, admitted to Chalmers Hospital on 25th June 1913.

Complaints.—Pain in the chest, shortness of breath, severe cough.

History.—One day in January 1913, while walking in the street, patient was suddenly seized with an intense stabbing pain in the front of the upper part of the left chest; it went through to the shoulder. Next day he noticed a swelling over the position of the pain; had not noticed any swelling before. The pain, which is induced by exertion, has continued. Has been off work since. A fortnight ago he began to be troubled with a cough, which has been constant since. Has had syphilis.

Present Condition.—A stoutly-built, short-necked man; full-blooded; complexion high-coloured; is cyanosed. Marked evidence of aortic aneurysm; pulsating prominence in the region of 2nd, 3rd, and 4th right costal cartilages; dulness projects both to the right and left of the sternum. Second aortic sound loudly accentuated; systolic aortic murmur. Tracheal tugging present.

Lungs.—Paroxysmal cough; sputum clear and frothy, occasionally blood-tinged. Impaired percussion over the whole of the right lung, most marked posteriorly between the spine and the scapula, where the vocal resonance and breath sounds are markedly increased in intensity.

Treatment.—Rest; iodide of potassium.

Discharged 9th August 1913 improved.

Readmitted 8th September 1913, and *discharged* 30th October improved.

Readmitted 6th November 1913, and *died* 1st February 1914.

Post-mortem examination showed a large aneurysm of the ascending aorta; pressure on the root of the right lung and right bronchus; marked bronchitis, with retained secretion in the bronchial tubes; retraction and consolidation of the lung; no tubercle.

CASE V.—*Aortic Aneurysm; Pressure on the Root of the Left Lung and Left Bronchus; Consolidation of Left Lung (Chronic Pneumonia); no Phthisis.*—Male, aged 37, seen on 4th September 1886.

Complaints.—Cough, spitting of blood, shortness of breath, etc.

Duration.—Five months.

Present Condition.—A big, strong, well-nourished man, who was formerly in the Army, and has had syphilis.

Physical Signs.—Left chest measures half an inch less than the right at the level of the nipples. Impaired percussion over the whole of the left lung, back and front; bronchial breathing, but no moist sounds over the whole of the left lung. Has had repeated attacks of hæmoptysis, but the amount of blood expectorated has not been large. No evidence of phthisis or cavity formation.

On forcibly compressing the chest during deep expiration expansile pulsation can be felt. No definite dulness over the aorta. The aortic second sound is very loud and accentuated, and there is a loud systolic and a very short diastolic aortic murmur following the ringing accentuated second sound.

9th December 1886.—Patient died from rupture of the aneurysm into the left bronchus.

Post-mortem Appearances.—Large aneurysm of the transverse and descending thoracic aorta. Consolidation of the left lung (chronic pneumonia); pressure on the root of the left lung and left bronchus. No phthisis.

CASE VI.—*Aneurysm at the Termination of the Transverse Portion of the Aortic Arch and Descending Thoracic Aorta; Consolidation of the Left Lung (Chronic Pneumonia and Bronchiectasis); Pressure upon the Root of the Left Lung; Obstruction of the Left Bronchus.*—Male, aged 44, seen with the late Dr. Foulis.

Complaints.—Cough, shortness of breath, pain in the back, etc.

History.—The patient, who was naturally a big, muscular, full-blooded man, had suffered from pain in the back between the scapulæ, for which there was no obvious cause, for two or three years. For the past three months he has been much troubled with cough and shortness of breath. At first there was a good deal of frothy or muco-purulent expectoration, and at times hæmoptysis, small in amount; latterly there has been no expectoration.

Physical examination showed marked dulness over the whole of the left chest, bronchial breathing, no moist sounds; a markedly accentuated aortic second sound, and very definite impairment of the percussion-note over the left side of the chest in the 1st and 2nd interspaces adjacent to the sternum. The patient had had syphilis.

Post-mortem examination showed a large aneurysm at the termination of the transverse part of the aortic arch and descending thoracic aorta. The bodies of several vertebræ were eroded. The root of the left lung was compressed and the left bronchus completely obstructed. The left lung was partly consolidated and œdematous; many of the bronchi were dilated; the smaller bronchi were filled in places with thick muco-pus.

CASE VII. — *Aortic Aneurysm; Consolidation of the Right Lung (Chronic Pneumonia); Pressure on the Root of the Right Lung and Right Bronchus.*—A. W., aged 50, seen on 31st March 1886.

Complaints.—Shortness of breath, pain in the right chest.

Duration.—Twelve months. History of syphilis.

Present Condition. — Right chest smaller than the left. Marked dulness over the right lung, both back and front; bronchial breathing and greatly increased vocal resonance; very few moist sounds; little expectoration.

Veins on the right side of the neck somewhat prominent. Pain in the 3rd right interspace. Deep pulsation can be felt in the chest on forcible compression during expiration. Dulness on forcible percussion over the ascending portion of the aortic arch and to the right of the sternum in the 2nd and 3rd interspaces. Aortic second sound very loud and ringing.

Diagnosis.—Large expansile aneurysm of the ascending portion of the aortic arch; compression of the right bronchus; consolidation (chronic pneumonia) of the right lung.

CASE VIII.—*Aortic Aneurysm; Pressure on the Root of the Right Lung and Right Bronchus; Consolidation of Right Lung.*—J. D., aged 52, admitted to the Newcastle-on-Tyne Infirmary on 25th February 1878.

Complaints.—Shortness of breath, pain in the chest, cough, blood-spitting, etc.

Physical Signs.—Visible pulsation and dulness on percussion in the 2nd, 3rd, and 4th right interspaces; loud double aortic murmur.

Lungs.—Cough for twelve months; sputum usually white and frothy, occasionally blood-tinged. Dulness and tubular breathing over the whole of the right chest, back and front. No moist sounds. Consolidation of the right lung, evidently due to chronic pneumonia, the result of pressure on and obstruction of the right bronchus.

Died July 1878. No post-mortem.

Case IX.—*Large Aortic Aneurysm Pressing on the Root of the Left Lung.*—Male, aged 45, seen in consultation on 5th July 1900.

Complaints. — Shortness of breath on exertion; attacks of severe dyspnœa and paroxysmal cough; frequent attacks of hæmoptysis; pain in the chest, referred to the middle of the left scapula, left shoulder, and down the left arm. Loss of weight (2 stones).

Physical Signs.—Impaired percussion-note over the ascending and transverse portions of the thoracic aorta, and posteriorly between the spine and the left scapula (descending thoracic aorta). Tracheal tugging marked. No difficulty in swallowing. Slightly impaired percussion over the whole of the left lung. Respiration in the left lung much weaker than in the right, evidently due to pressure on the left bronchus. No moist sounds in the lung.

Case X.—*Aortic Aneurysm; Pressure on the Right Bronchus; Consolidation of the Lung; Chronic Pneumonia.*—Male, aged 71, seen in consultation on 23rd July 1897.

Complaints.—Suffers from angina pectoris. Now complains of shortness of breath. Has had three attacks of hæmoptysis.

Present Condition.—A broken-down, atheromatous-looking old man. Well-marked signs of dilatation or aneurysm of the aortic arch. Dulness on percussion over the upper lobe of the right lung, back and front; impaired percussion over the lower lobe posteriorly. Bronchial breathing and a few crepitations over the right lung, but no evidence of breaking-down or phthisis. No T.B. in the sputum.

Diagnosis.—The condition seems to be consolidation of the lung due to chronic pneumonia, the result of compression of the right bronchus.

Case XI.—*Fusiform Dilatation of the Ascending Thoracic Aorta and Transverse Portion of the Aortic Arch; Large Sacculated Aneurysm at the Junction of the Transverse with the Descending Thoracic Aorta; Compression of the Root of the Left Lung and Left Bronchus; Erosion of the Ribs and Vertebræ; Acute Phthisis, with Numerous T.B. in the Sputum and Extensive Cavities in the Left Lung.*—W. K., aged 49, brassfinisher, admitted to Edinburgh Royal Infirmary on 24th November 1897.

Complaints.—Pain in the chest, passing through to the back; cough, spit, shortness of breath, etc.

Duration.—Six weeks.

History.—The attack commenced with a sudden, sharp pain in the left side of the chest, a little above the nipple. The pain has continued, but is not constant; it is brought on by exertion. Two weeks after the onset, cough, spit, night-sweats, and breathlessness (especially on exertion) developed.

Previous health good.

Present Condition.—A spare, thin man; has lost 1½ stones in weight since this illness commenced. Temperature—morning, 99·4°; evening, 102°; pulse, 96.

Physical Examination.—The percussion-note was impaired over both apices and over the whole of the left lung; on auscultation moist sounds (metallic crepitations) were audible over the whole of the left lung, and there was evidence of cavities in both the upper and lower lobes.

The sputum contained numerous tubercle bacilli.

Progress.—The patient gradually got worse, and died on 9th January 1898—six weeks after admission. The total duration of the illness was three months. The temperature was elevated (highest morning, 102·4°; highest evening, 102·2°); pulse varied from 68 to 96, average 84.

Post-mortem Appearances.—The ascending aorta and aortic arch were dilated fusiformly, and a large sacculated aneurysm was present at the junction of the transverse with the descending thoracic aorta. The sacculated portion of the aneurysm was filled with laminated clot. The bodies of the 2nd, 3rd, and 4th dorsal vertebræ and the 3rd, 4th, and 5th ribs at their junction with the vertebræ were eroded. The left bronchus was adherent to and markedly compressed by the sac of the aneurysm.

Left Lung.—The upper lobe and almost the whole of the lower lobe were riddled with cavities, some of which were of large size; numerous areas of consolidation were present between the cavities.

Right Lung.—Numerous small caseous nodules and cavities were present in the upper lobe.

Remarks.—This was an interesting case. The aortic lesion (fusiform dilatation and sacculated aneurysm of the aorta) was evidently of old-standing. On the top of this, acute phthisis, especially of the left lung, with T.B. in the sputum, had developed. The compression of the left bronchus and the lung changes which resulted therefrom were apparently the predisposing cause of the tuberculous lesion.

Case XII.—*Aortic Aneurysm; Extreme Collapse with Slight Interstitial Overgrowth of Left Lung; Advanced Chronic Interstitial Nephritis.*—J. A., aged 52, house-decorator, admitted to the Edinburgh Royal Infirmary on 12th May 1899.

Complaints.—Shortness of breath, cough, spit, dimness of vision, pain in the back.

History.—Four years ago the patient became short of breath on exertion. In September 1898 he was in the Marylebone Hospital on account of chronic Bright's disease, with lung complications; the left chest was tapped, 27 ozs. of fluid being withdrawn. Discharged from the Marylebone Hospital on 21st April 1899. Has been more short of breath since this illness. After his discharge from the Marylebone Hospital he visited the West Ophthalmic Hospital, London, on account of dimness of vision, and was told that he had albuminuric retinitis.

Previous Health.—At the age of 37 he had an attack of gout, which lasted four months. During the past three years has had four attacks of gout; one of them lasted three months. Has had pleurisy and spitting of blood.

Condition on Admission.—Sallow and emaciated; during the past twelve months has lost 2¾ stones in weight.

The left chest moves very little during respiration. Marked dulness on percussion and numerous moist sounds over the upper lobe of the left lung; impaired percussion and faint breathing over the lower lobe posteriorly. Signs of cavity at the right base. A systolic murmur and accentuated second sound over the course of the aorta, especially marked in the 2nd left interspace adjacent to the sternum. Marked pulsation in the episternal notch. Dulness and pulsation indicative of an aneurysm in the upper part of the left chest, especially in the 2nd left interspace.

Urine contains albumen and granular casts. Albuminuric retinitis most marked in the left eye.

May 28th.—Copious nose-bleeding. No T.B. found in the sputum.

Subsequent Progress.—Several attacks of breathlessness, hæmoptysis, and diarrhœa. Fluid developed in the abdomen, and on several occasions was withdrawn by tapping—2½, 4½ pints, etc. Great œdema of the whole body.

3rd December, epileptic fit; *4th December*, several epileptic fits. Died to-day.

Post-mortem Appearances.—A large fusiform aneurysm involved the arch and descending thoracic aorta. At the termination of the arch and the beginning of the thoracic portion, the aneurysm was adherent to the front of the spinal column over an area rounded in outline, about one inch in diameter; over this area the coats of the aorta were destroyed, and the posterior wall of the sac was formed by the body of the fourth dorsal vertebra, which was eroded to a depth of nearly half an inch.

The front of the pericardium was adherent to the chest-wall on the left side.

The left pleural sac was obliterated by chronic fibrous adhesions, the pleura thickened and adherent to the spinal column. The left lung was small and collapsed, and covered with somewhat dense chronic pleurisy. On section, the lung showed extreme collapse, with slight interstitial overgrowth.

The kidneys were in a condition of advanced interstitial nephritis.

In this cases tuberculosis of the lung was associated with an aortic aneurysm; but there was nothing to show any direct connection between the aneurysm and the tubercle.

CASE XIII.—*Aortic Aneurysm; Phthisis; Sputum contains T.B.*—R. L., aged 44, warehouseman, admitted to Edinburgh Royal Infirmary on 31st March 1904.

Marked physical signs of large aneurysm of the transverse portion of the aortic arch projecting up into the left side of the neck; pulsating tumour; accentuated aortic second sound; systolic and diastolic shocks over the aneurysm; voice hoarse; movements of the left vocal cord impaired; tracheal tugging; difficulty in swallowing.

Lungs.—Cough, spit, shortness of breath; sputum occasionally blood-streaked, contains T.B. Consolidation, with numerous crepitations of the upper lobe of left lung both back and front.

Over the position of the aneurysmal sac very marked tubular breathing. This was a peculiar and very interesting point.

Treatment.—Several injections of gelatine.

Course of the Case.—Improved, and was discharged on 28th April 1904. Subsequent history not known.

THE NOTIFICATION OF BIRTHS (EXTENSION) ACT.

By WM. ROBERTSON, M.D., D.P.H.

ALREADY there is a movement afoot to put the new Notification of Births Act into operation. The sections recently added to the original Act now empower local authorities to treat children under school age, and to give advice, as well as sustenance, to expectant mothers.

A hasty consideration of this far-reaching statute is apt to prompt the conclusion that something after the nature of social revolution is being attempted. But calmer deliberation will show that the step is, after all, but a phase in preventive medicine. Thousands of lives are being lost in this world's war, and the national birth-rate is declining. What is more natural than that something should be done to make compensation for that serious loss and marked decline?

If we can prevent the loss of the lives of those who are expected to replace that section now being thinned by sickness, accident, and explosives, we must surely lay credit to ourselves for having done good. And even if it be not a case of snatching children under school age from death, but rather one of restoring to good health those who might sink into the morass of feeble health, we shall have achieved a great economy in human life.

So it is with expectant mothers. Those whom the new provision is intended to reach are women who, for the most part, pay little heed to the ordinary canons of motherhood. If they are neglecting themselves by over-indulgence, by overwork, or, it may be, are stranded and deserted and expected to fend for themselves, the timely advice and food that are given them may make a great difference to the child that is to be born.

These at least are the views that must find favour, no matter how much the principle may be disliked.

The general practitioner is inclined to resent this sort of legislation because he sees in it a tendency to encroach upon what one might term his preserves. The writer does not view the omens so gloomily as that, because the people who will receive relief are not those whom the practitioner would care to include on his list of patients.

Objection may be taken to such an assertion on the ground that it savours of pure hypothesis. Fortunately, the writer has justification for his belief, because during the past year the provision for the treatment of children under school age has been anticipated in Leith.

The necessity for the step arose in the following way:—The outdoor visitation in connection with Leith Hospital was relinquished owing to lack of funds. Many a needy parent had reason to be grateful to the outdoor visiting staff. These people were not poor in the sense that they would have come under the classification of paupers, but they were sufficiently poor to be unable to command the services of a general practitioner.

Especially during epidemic periods of measles and whooping-cough the visits of the staff from Leith Hospital did a vast amount of good, because pneumonia, broncho-pneumonia, and bronchial affections were detected and treated. Further, the system of notification of the first case of measles occurring in each house prompted the hospital outdoor visiting staff to notify cases to the Public Health Department. This led to visitation of all cases, in the poorer quarters, by the epidemic officers. Where normal cases were found, no further visits were paid by the Public Health officials, but where instances of serious pulmonary complications were discovered one or other of the lady health visitors paid regular visits to the ailing children, some of whom were removed to hospital, especially when home environment was unsatisfactory.

When, therefore, the poor people ceased to command the services of a "free" doctor, a gap was created. This was clearly proved from the experience of the lady health visitors who again and again reported to the Medical Officer of Health cases of children requiring skilled attention. To bridge the gap the Medical Officer of Health undertook to give advice to those who could bring their children to the Public Health Office. As time went on the work increased, until ultimately the clinic became a regular institution.

As long as the question of giving advice and treatment rested with infectious conditions no objection could be taken, but no provision was made for a public health officer to advise and treat children suffering from the commoner ailments of infancy. (The sections added to the Notification of Births Act now legalise treatment of infectious and non-infectious conditions among children under school age.)

While the Medical Officer of Health could not continue the work, it was felt that it ought not to be hastily relinquished, because the need for it had been created. Accordingly, the part time services of a medical woman were enlisted. Her work consisted in treating children under school age either at the clinic held once a week at the Public Health Office, or by paying visits to those who could not be brought to her.

The clinic lasted usually from two till five o'clock in the afternoon, and the work was very methodically done, one of the health visitors employed by the Corporation being present to assist in the undressing and weighing of infants. In the direction of feeding alone a vast amount of good work was done. Not a few cases of tuberculous taint were revealed, and these received appropriate treatment and care at the sanatorium.

Not one of the cases treated could be said to have come under the category of "paying" patients. It was easy to select the "necessitous" cases, because the ailing children were ferreted out by the lady health visitors during their routine of house-to-house visitations in the poorest localities.

So it will be a simple matter to continue the treatment of only really necessitous patients in terms of the provisions of the extended Notification of Births Act.

Where a sick children's hospital with its skilled advisers already exists the need for such a clinic will not be so clamant. But the visitation of ailing children whose parents cannot afford to pay for a doctor will ever be present.

For carrying out the provisions of the Notification of Births Act a scheme presented to the Leith local authority suggests the following steps:—

"The appointment of a medical woman at a salary of £250.

"The taking over and controlling of the creche already in existence in Leith, and supported by voluntary contributions."

The Midwives Act will soon be extended to Scotland. This opens the field for the skilled attention of a medical woman. Accordingly, the person appointed under the Notification of Births Act will be available for inspecting the kit of midwives and generally supervising their work.

CLINICAL RECORDS.

CASE OF LACERATED WOUND OF THE THIGH TREATED BY EUSOL.

By ALEXANDER MILES.

THE case recorded below seemed to offer a favourable opportunity of testing the value of hypochlorous acid, in the form of eusol, in the treatment of wounds contaminated with street dirt. It had certain analogies with the class of wounds for which this antiseptic agent is specially advocated, in that the tissues were grossly contused and lacerated, and that infective material of a dangerous kind had been directly introduced into the depths of the wound. While none of the large vessels or nerves had been severed they were exposed for a distance of several inches by the overlying muscles having been torn through. As it was possible to employ the eusol within an hour or two of the accident, and before any other antiseptic had been applied, its efficacy as a means of purification and as a first dressing could be tested.

Allowing for what is perhaps a natural prejudice in favour of a new home product, the results of this observation appear to me to be eminently satisfactory and encouraging.

The absence of any sign of irritation from the full-strength lotion freely used to purify the wound and subsequently introduced through a drainage tube was in accordance with all our experience of this agent. The discharge was never more than would be accounted for by the natural tissue changes incident to the repair of such a wound, and, with the exception of a small collection of sero-pus which formed at the seat of a hæmatoma on the outer aspect of the thigh to which the antiseptic did not reach, it was never purulent. Granulations formed with more than usual rapidity, and the wound healed with a sound and pliable cicatrix. The functional result, in view of the extensive laceration of muscles, is also satisfactory.

It is as unnecessary as it would be futile to claim that similar results would not have followed the use of some other antiseptic. It is sufficient for the present purpose to be able to show that they were obtained by the use of eusol.

CASE.—The patient was a sturdy little boy of six who, while play-

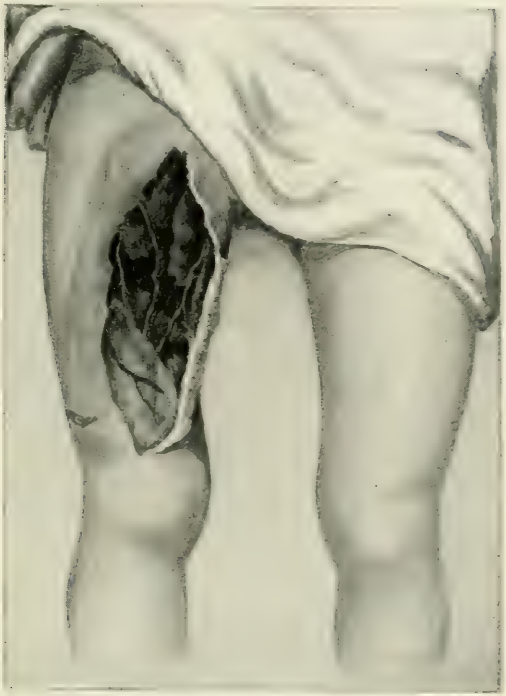


Fig. 1. Lacerated Wound of Thigh : on admission.

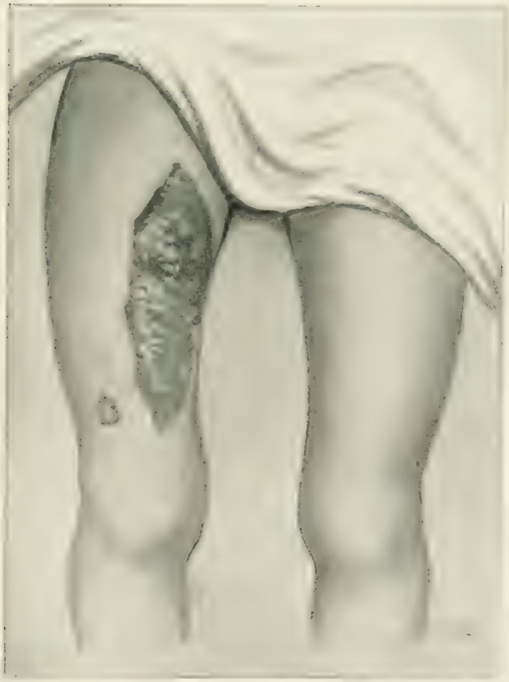


Fig. 2.—Lacerated Wound of Thigh : on 16th day after treatment by Eusol.

ing on the street on the evening of 5th September 1915, was knocked down by a cable car. The statements varied as to what happened, one being that he fell in front of the car and that his right leg was crushed between the metal "guard" and the causeway, the other that he was merely struck on the thigh by the projecting step at the rear end of the car. From the nature of the injuries and the damage to his clothing the former seems the more likely. There was no suggestion that the wheel passed over his leg.

When admitted to the Infirmary, about half an hour after the accident, he was in a state of profound shock, and had evidently lost a considerable amount of blood.

There was an extensive lacerated wound on the front and inner aspect of the right thigh. The quadriceps extensor, sartorius, and adductor muscles were torn across and their ends retracted, exposing the femoral vessels, which, however, were intact. The superficial tissues of the whole thigh were contused and the limb was considerably swollen. The edges of the torn skin on the outer edge of the wound were undermined for a distance of from two to three inches, and near the lower end was a smaller laceration through the undermined integument. The whole length of the inner edge was everted, exposing the subcutaneous fat on its deep aspect. The appearance is shown in a water-colour drawing made by Mr. G. Buchanan, a member of the class of clinical surgery, from which Fig. 1 is reproduced.

There was in addition a lacerated wound in the perineum, the skin of which was undermined for a considerable distance around.

All the wounds were contaminated with street dirt and with shreds of torn clothing, which were adherent to the damaged tissues.

In the course of an hour or two, when the shock had partly passed off, an anæsthetic was given and the wound was thoroughly bathed with eusol solution. None of the bruised tissue was clipped away. The ends of the torn muscles were identified and sutured accurately with catgut. A rubber tube with lateral openings was introduced through the small tear on the lower and outer part, and carried to the deepest part of the wound; the part of the tube projecting from the wound was without lateral openings. The edges of the integument were then brought together as far as possible by interrupted sutures, and a dressing of gauze soaked in eusol applied. The end of the drainage tube was carried through the dressing and bandage to admit of eusol solution being poured through it at intervals.

The perineal wound was opened up sufficiently to admit of its being purified with eusol, and was then packed with gauze soaked in the solution.

For the first few days several drams of eusol solution were poured through the tube every six hours and the wounds were dressed daily. It was noted that there was remarkably little discharge, although the bruised edges of the wound and portions of the subcutaneous fat and fascia underwent necrosis and were gradually separated. On the removal of the sutures on the eighth day the wound gaped to some extent. The deep tube was removed on the eleventh day. On the same day a small collection of sero-purulent matter was let out from under the skin on the outer aspect of the thigh where the skin had been greatly bruised, but beyond this there was no suppuration. Healthy granulations quickly formed, and Fig. 2 represents the appearance on the sixteenth day. Scarlet-red ointment was now applied as a dressing and the wound rapidly healed, so that the boy was able to be up and about on the twenty-ninth day.

He now walks without a limp and has perfect use of all the muscles that were sutured.

RECENT ADVANCES IN MEDICAL SCIENCE

MEDICINE.

UNDER THE CHARGE OF

W. T. RITCHIE, M.D., EDWIN MATTHEW, M.D., J. D. COMRIE, M.D., AND A. GOODALL, M.D.

PARALYTIC AND PERSISTENT SEQUELÆ OF MIGRAINE.

RAMSAY HUNT (*Amer. Journ. Med. Sci.*, September 1915) discusses the paralytic and persistent sequelæ of migraine. In most cases migraine consists in nothing more than periodical attacks of headache. Occasionally along with the headache one may get aphasic attacks, hemianopsia, hemiparesis, etc., which come and go with the attack. Hunt points out the importance of recognising that, in addition to these transient paretic attacks, persistent paralytic conditions may follow migraine.

1. *Ophthalmoplegia.*—As affecting the 3rd nerve there are two types —a recurrent ocular palsy followed by complete recovery, and periodic exacerbations of a pre-existing paralysis of some branches of the 3rd nerve.

Both extrinsic and intrinsic muscles of the eye may be involved, or only the extrinsic. Hunt describes and discusses 4 cases where, following typical migraine, the 3rd nerve became involved wholly or in part. To account for the involvement of the 3rd nerve in these cases it is pointed out that in its course along the base of the brain the nerve runs backwards between the posterior cerebral and superior cerebellar arteries, and vascular pressure and constriction would affect the 3rd nerve. Paralysis of the 4th nerve following migraine, he says, is extremely rare, only 2 cases being on record. Isolated paralysis of the 6th nerve is also very rare.

2. *Permanent Hemianopsia.*—Hunt describes fully a case of typical migraine from childhood which after an attack was followed by a right homonymous hemianopsia which persisted. The condition revealed itself to the patient on waking from an attack. The lesion was one behind the optic chiasma, as there was no haziness or darkness in the blind area and no pupillary phenomena. A second case of Hunt's in a woman of 45 developed first a temporary hemianopsia lasting 10 days, and 8 months later a second attack which was persistent. He thinks the condition due to a thrombosis of one of the arteries.

3. *Hemiplegia.*—Hunt describes a case in a woman of 32 who had

migraine since childhood. The attack of hemiplegia developed at the end of a migraine; there was also hemianopsia. Complete recovery ultimately took place. The cause of the attack was doubtful, but the recovery favours a vascular lesion. Four other cases have been recorded, one by Oppenheim, which terminated fatally, and in which thrombosis was ascertained to be the cause.

4. *Lesions of the Optic Nerve.*—Hunt's patient after a typical migraine developed a unilateral retrobulbar neuritis. The patient recovered. Optic atrophy, thrombosis of the cerebral artery of the retina, hæmorrhage into the retina, have also been described.

The interesting point is the cause of these sequelæ of migraine. Hunt looks upon migraine as an auto-intoxication occurring at intervals, and that the sympathetic and vascular systems suffer most. As a result of this auto-intoxication one gets localised vasomotor spasm or vasomotor dilatation of the cerebral circulation. This vasomotor condition may be seen during an attack by ophthalmological examination, and it is natural to suppose that other parts of the cerebral circulation share, and so we can account for the transient phenomena so often seen in migraine—*e.g.*, aphasias, scotomata, paresthesiæ, etc. The permanent sequelæ are also in all probability vascular. And in a person with an already established arteriosclerosis who is also the subject of attacks of migraine there is a ready tendency for the occurrence of thrombosis and hæmorrhage.

THE DIFFERENTIATION OF CEREBRAL AND CARDIAC TYPES OF HYPERARTERIAL TENSION IN VASCULAR DISEASE.

Stone (*Arch. Inter. Med.*, November 1915) has an important paper on the differentiation of cerebral and cardiac types of hypertension. The recognition of these types is important from a diagnostic and from a prognostic standpoint, and inability to recognise them arises from confining one's view of arterial tension to the systolic blood-pressure alone. It is not sufficiently recognised that two cases with equally raised systolic blood-pressure may have one a normal and the other an increased diastolic pressure.

Stone divides cases with circulatory disturbance into 4 groups—(1) Hypertension—cerebral group; (2) hypertension—cardiac group; (3) myocardial and valvular lesions with increased heart-load ratio; (4) myocardial and valvular lesions with decreased heart-load ratio. Heart-load is the amount of force exerted by the heart at each systole to overcome the diastolic pressure and secure the onward movement of the blood. The heart-load ratio is the pulse pressure divided by the diastolic pressure, and in health is about 50 per cent.

1. *Cerebral Group.*—Stone studied 27 cases in this group. The average systolic pressure was 202, the diastolic pressure 134, and

the pulse pressure therefore 68. The heart-load was therefore 51 per cent.—a normal amount.

In this group the all-important point is the increase in the diastolic pressure. The end in these cases is either a cerebral hæmorrhage or a cerebral thrombosis and œdema, and not from cardiac breakdown. The fundamental pathological change in these cases is one affecting the smaller blood-vessels all over the body. The main symptoms in such cases are pressure in the head, vertigo, nocturnal headache wearing off by noon, retinal and subconjunctival hæmorrhages.

2. *Cardiac Group.*—Stone studied 24 patients in this group. The average systolic pressure was 180, the diastolic 92, and the pulse pressure 88. The heart-load ratio is increased to 96 per cent. instead of 50. The diastolic pressure is much lower than in the cerebral group, and the smaller blood-vessels in these cases are not involved. The heart is hypertrophied in these cases, not as result of peripheral resistance, but because of sclerotic damaged valves, sclerosis of coronary arteries, or, it may be, as result of factors outside the heart—*e.g.*, dilatation of the aorta, gout, syphilis, cirrhosis of liver, etc. The symptoms are dyspnœa on exertion, œdema of extremities, palpitation, etc. The end comes as the result of gradually failing heart muscle.

3. *Myocardial and Valvular Lesions without Hypertension but with increased Heart-Load Percentage.*—Stone reports on 14 patients—of much lower age than in groups 1 and 2. The systolic pressure was 112, the diastolic pressure 60, and pulse pressure 52. The heart-load ratio, therefore, was 86 per cent., an increase of 36 per cent. The greatest increase in the heart-load was in aortic incompetence cases up to 245 per cent. In these cases the danger is of cardiac incompetency as the result of only slight overstrain.

4. *Myocardial and Valvular Lesions with Decreased Heart-load Percentage.*—Ten patients were observed. The systolic pressure was 118, the diastolic 92, the pulse pressure 26, and the heart-load 28 per cent. These cases show various degrees of dilatation, resulting in an inability of the heart muscle to produce the necessary energy. They are important, especially in lesser degrees of dilatation, which are almost impossible to diagnose by percussion but can be easily recognised by taking both systolic and diastolic pressure.

Stone draws certain conclusions from his studies of these cases. The main are—

1. The determination of systolic and diastolic pressure should always be done by the auscultatory method.

2. The pulse pressure measures the energy of the heart in systole in excess of the diastolic pressure. It represents the load of the heart. It is 50 per cent. of the diastolic pressure.

3. A sustained diastolic pressure of 105 or 100 or above signifies hypertension, irrespective of the height of the systolic pressure.

4. In the cerebral hypertension group the diastolic pressure is persistently high—from 120 to 160.

5. In acute circulatory failure due to shock, in an individual with a strong acting heart, the diastolic pressure is decreased while pulse pressure is increased, since the heart is exerting all its force to supply the periphery with blood. This is a compensatory endeavour.

6. Measures directed to the reduction of blood-pressure by diet, habits, venesection, etc., are usually indicated in the cerebral group because of the high diastolic pressure. Such measures are hardly indicated in the cardiac hypertension group, where the high systolic pressure is compensatory. Here digitalis and strophanthus are indicated when the heart muscle shows signs of fatigue.

HODGKIN'S DISEASE—A STUDY OF A SERIES OF TWENTY-FIVE CASES.

Cunningham of New York (*Amer. Journ. Med. Sci.*, December 1915) has a long paper summarising the symptomatology, pathology, prognosis, and treatment of Hodgkin's disease. He divides Hodgkin's disease into two types—symptomatic (23 cases) and latent (2 cases). Symptomatic cases are either acute (3 cases) or chronic (18 cases). Acute symptomatic cases resemble an acute toxæmia like typhoid, sepsis, or malaria, and run a course of a few weeks or months. They show progressive loss of weight, general weakness, chills and fever, and night sweats. Chronic symptomatic cases are the most common type, and have a long duration characterised by exacerbations and remissions. The progress is slow, and under treatment they improve for a longer or shorter time, but ultimately end with symptoms as in the acute cases. In the latent type the course is slow over a number of years with no subjective symptoms, but with enlarged glands which alternately increase and decrease in size. One case Cunningham has had under observation for 25 years. The temperature is an interesting feature in the study of these cases.

In 13 of Cunningham's cases the temperature was normal all the time they were under observation. In the others temperature was present, and in Hodgkin's disease, where irregularity and variability is the marked feature, there is no set type of temperature, as Cunningham's cases simulated all the classical curves—tuberculosis, typhoid, sepsis, malaria.

The results in Cunningham's cases have been — 7 dead, 9 not heard from, 5 at present show active manifestations, 1 is latent, and 1 in good health. The average duration has been 3 years.

In regard to the pathology of Hodgkin's disease he has found nothing to add to Dorothy Reed's well-known description.

Excision of the glands where possible and Roentgen rays he has found the best treatment. Several of his cases were treated with vaccines—on the basis that the condition is due to a diphtheroid bacillus—but in none had he any success.

He concludes from his observations in these 25 cases—

1. Dorothy Reed's Hodgkin's is not a type but the classical picture; it stands as a distinct entity.

2. The prognosis of Hodgkin's disease is difficult. It is impossible to say that a case is cured.

3. The treatment is excision of all foci of infection, and Roentgen rays.

4. Vaccines are of no value.

5. The following evidence is given to support it as an infection, bacterial or protozoan in origin :—

(*a*) The histology is that of an inflammatory reaction.

(*b*) Injections of gland emulsions have caused temporary lymphatic enlargement in lower animals.

(*c*) The fever resembles closely that of other infections.

(*d*) The leucocytosis.

(*e*) The exudate when serous surfaces are involved.

6. The specific organism has not been isolated. E. M.

SURGERY.

UNDER THE CHARGE OF

J. W. STRUTHERS, F.R.C.S., AND D. P. D. WILKIE, F.R.C.S.

OXYURIS VERMICULARIS AS A CAUSE OF APPENDICITIS.

WHILE oxyuris vermicularis is often found in the diseased vermiform appendix, opinions have differed much as to the significance to be attached to its presence. Some have claimed that appendicitis may be set up by the worm, while others maintain that its presence is merely accidental and of no importance. Suzuki (*Surg., Gynec., and Obstet.*, December 1915) has investigated the subject laboriously and thoroughly. In 500 autopsies he found oxyuris in the cæcum, appendix, or in both, on forty-four occasions, and in all these cases he hardened, and made serial sections of, the appendix, in order to determine whether the worm was capable of inducing changes in the mucosa, of injuring or penetrating it. In addition, he has made a thorough survey of the available papers on the subject. His conclusions are as follows :—

1. In an appendix the oxyuris may be harboured not only in the lumen but also in the mucosa and submucosa; this may occur with-

out producing any clinical symptoms or any noteworthy anatomical change.

2. We sometimes encounter a case in which an appendix infected with oxyuris is inflamed through a totally different agent, and in the majority of cases the presence of the oxyuris in cases of appendicitis, whether it be acute or chronic, is to be considered as a pure accident.

3. A true inflammation is provoked by the parasites when they have penetrated the wall of the appendix in large numbers, and when a fissure is thus produced through which the infecting agent can enter. This type of case offers distinct histological data, and may be termed "appendicitis oxyurica." It is but rarely met with, and Suzuki found one such case in 103 surgically extirpated appendices.

4. A non-inflammatory but pain-producing morbid condition of the appendix is sometimes caused by the oxyuris, in which case destruction of tissue accompanied by hæmorrhage can always be found. Three cases of this type were found in 103 appendices examined. It is not likely that oxyuris situated in the lumen of the appendix can produce a painful condition.

END-RESULTS IN FRACTURE OF THE SHAFT OF THE FEMUR.

Martin (*Surg., Gynec., and Obstet.*, December 1915) has made an interesting study of the end-results in 242 cases of simple fracture of the femoral shaft. His material was drawn from cases admitted to seven hospitals in Philadelphia between 1904 and 1914. Of these there were 400 in all, but 158 cases could not be traced, so that only 242 cases were available for examination.

It is noteworthy that 44 deaths occurred in association with, if not actually due to, the fracture, the most prominent causes of death being shock, pneumonia, and delirium tremens.

All the cases were treated on the same plan, by weight extension fixed to the limb by strapping, immobilisation being secured by sand-bags.

As the results of his work Martin found that in children fracture of the shaft of the femur occurs mainly in the middle third; that 90 per cent. of all cases of simple fracture of the femur in children are followed by complete recovery; that in children, at the time of discharge from hospital, there is no stiffness in the knee; and that the average duration required to treat cases to a finish, in children, is two to three months. In adults Martin found that the lesion, as in children, was most commonly in the middle third of the shaft; that between the ages of 15 years and 25 years there are about 50 per cent. of complete recoveries, while after 25 years the permanent disability is proportionate to the age of the patient. Men above 40 years rarely regain strength and activity. In adults, in the absence of shortening, there may be lasting weakness of the leg and thigh, but disability is to some extent proportionate to the degree of shortening. The average time required for treatment in adults is 8 months, and at the time of their discharge from hospital there is stiffness of the knee in all cases. Among adult labouring men 90 per cent. never become able to do their regular work. The unsatisfactory results following the weight extension treatment of simple fracture of the femoral shaft in adults suggest that this method of treatment is either inadequate in itself or inadequately applied. Efforts for obtaining better results should be directed to (*a*) the employment of more weight in procuring extension; (*b*) early resort to open operation if extension seems inefficient; (*c*) the systematic use of massage and passive motion continued for months; (*d*) the longer use of crutches than is now customary; (*e*) education of the patient.

OSSEOUS DYSTROPHIES.

Bérard and Alamartine (*Revue de Chirurgie*, Nos. 8, 9, August 1914 to November 1915) record three cases of what they term localised osseous dystrophy, simulating tumour. The lesions they describe took the form of cystic or fibrocystic swellings, at the upper and lower ends of the femur and in the shaft of the tibia respectively. As they point out, such conditions are well enough known at the present day, but considerable confusion exists as to their origin, their proper treatment, and their nomenclature. The characteristics of the condition are that its development is always associated with the period of growth and that it usually begins at the end of the diaphysis, sometimes towards the middle of it, but never invading the epiphysis or its cartilage. Trauma has often been regarded as a prime factor in causing the disease, but a critical examination of the accurately recorded cases has led the writers to the conclusion that its importance has been exaggerated. In many cases the weakening of a bone produced by the disease has led to a fracture which has erroneously been regarded as the cause of the condition.

If the cases of Recklinghausen's disease, sometimes mistaken for this condition, are eliminated, it is found that the lesion is always single.

It takes two forms, cystic and fibrous. In the cystic form the surrounding soft parts are unaltered; the periosteum shows neither thickening nor atrophy. The bone itself is the seat of a localised swelling, seldom larger than a large orange. On section the periphery is seen to consist of a thin layer of compact bone limiting a smooth-walled cavity, sometimes empty, sometimes containing a serous or sero-sanguineous fluid. It is not lined by a limiting membrane.

The fibrous form is only found at the end of a diaphysis, and differs from the cystic in sometimes having an irregular bossy surface.

The exterior is composed of a thin layer of bone as in the cystic form, but the interior is occupied by a variable number of partitions of osteoid tissue, irregularly arranged, enclosing a tissue whitish or reddish in colour, sometimes suggesting a myeloma in appearance. Intermediate fibrocystic forms are found.

Microscopic examination of the cystic form shows an inner layer of poorly developed fibrous tissue, of varying vascularity, and stained here and there with blood-pigment; a middle layer of compact bone, partly converted into fibrous tissue, with enlarged medullary spaces, and an outer layer of periosteum. The tissue occupying the interior of the fibrous variety consists of soft œdematous vascular fibrous tissue. The vessels are embryonic in type and interstitial hæmorrhages are common. Cells resembling giant-cells of myeloid tumours are found, but are said to be really osteoclasts, and the cells of the fibrous material are not sarcomatous in type.

Clinically the cases come under observation as examples of "tumour," of spontaneous fracture, or excessive formation of callus. Thanks to radiography, an accurate diagnosis can usually be made. The site of the lesion, its thin bony wall, and the entire absence of periosteal reaction and involvement of the overlying parts are distinguishing features.

The treatment should be of the most conservative character. Cases may recover with simple immobilisation, but the method most frequently employed is opening the cyst and curetting the walls. If a large cavity results it is treated on general principles, bearing in mind that the condition is not one of tumour growth and that complete excision is not required, as recurrence is said never to take place.

J. W. S.

DISEASES OF CHILDREN.

UNDER THE CHARGE OF

G. H. MELVILLE DUNLOP, M.D., W. B. DRUMMOND, M.B.,
AND A. DINGWALL FORDYCE, M.D.

Gastric Radioscopy in Children.

Willox publishes an elaborate paper on this subject (*The Practitioner*, November 1915) based upon a series of observations on children of different ages. He recommends the use of barium sulphate rather than bismuth as being less expensive, though a larger quantity must be given to produce an equally opaque shadow. Four level teaspoonfuls of barium in a 6-oz. feed produce a satisfactory shadow. His method consisted in making a series of tracings on paper of the shadows seen on the screen, the preparation of a number of plates for each child being expensive, laborious, and unnecessary. His chief conclusions are as follows:—

The shape of the stomach in children is not a fixed one, but presents many differences during the process of digestion; the same stomach may show different forms at different times. As a rule, in infants the shape is more or less *globular, becoming elongated* as the child grows older; so that in many cases in the older children the stomach, when examined immediately after the ingestion of a meal, is somewhat of a J shape.

The foodstuff of which a meal is composed does not in itself seem to have much, if any, effect on gastric motility. *The* important thing is the degree of *fluidity* of the meal; the more fluid a meal is, the more quickly it will pass through the stomach.

The opaque substance used *has* an influence on the rate of evacuation of stomach contents. Barium meals pass out of the stomach more quickly than similar meals containing bismuth.

Citrated milk goes through more rapidly than plain milk, which may be due to a smaller curd being formed. The stomachs of older children empty quite as quickly as those of younger children, *if* a meal similar in bulk and consistence is given. If a second meal be taken before all the first has left the stomach, there may, or may not, be a mixing of the residue of the first with the second meal. The average time for the stomach to become empty was $3\frac{3}{4}$ *hours*, and the majority emptied in from 3 *to* 4 *hours*. Milk is *not* a suitable medium in which to give barium or bismuth. A semi-solid, or in case of infants a thick drinkable fluid like Benger's food, is the most satisfactory medium.

From X-ray appearances there is no evidence that bismuth forms a coating for the intestinal mucous membrane, but it seems to be mixed up with the intestinal contents, and may probably be so on excretion. The intensity of the shadows of the nodules in the bowel in different planes was even greater than that of the mass in the stomach; this would not be the case if the bismuth was separated out from the food and scattered along the wall of the bowel.

The stomach lies high up in the left hypochondrium in infants. In the great majority of cases the food passes through the pylorus intermittently, and in an apparently nodular form.

The Schick Reaction in Children.

The Schick reaction is a method of diagnosing immunity to diphtheria. Schick found that the subcutaneous injection of $\frac{1}{50}$ of the minimum lethal dose of diphtheria toxin for a guinea-pig weighing up to 300 grms. produced at the site of injection a characteristic reaction which has become known as the *Schick reaction*. If one-thirtieth of a unit or more antitoxin per cubic centimetre of serum is present in the blood there will be no reaction at the site of injection; but if there is less than one-thirtieth of a unit of antitoxin per cubic centimetre of serum, there will be a marked reaction within from thirty-six to forty-eight hours, which is characterised by redness, swelling, itching, and slight infiltration. This is a positive reaction, and means that the person injected has not sufficient antitoxin to neutralise the toxin injected; while if it is negative, it indicates that there is circulating in the blood sufficient antitoxin to neutralise the toxin injected. The unneutralised toxin is the thing which produces the local reaction.

Moffett and Conrad publish (*Journ. Amer. Med. Assoc.*, 18th September 1915) observations on the Schick reaction in 455 infants and children. Their conclusions are as follows:—(1) The Schick reaction differentiates doubtful membranes of the throat. (2) It tests the efficiency of antitoxin immunisation. (3) It is of great value in institutional epidemics, in which it lessens the amount of antitoxin used one half. (4) It differentiates susceptible from non-susceptible cases. (5) It shows a striking similarity in reaction in families, and indicates that immunity is a family condition, as shown by fifteen instances under the writers' observation. (6) It lessens the great yearly expenditure for unnecessary antitoxin.

INFANTILE SCURVY.

Hess (*Journ. of Amer. Med. Assoc.*, 18th September 1915) discusses a new aspect of the symptomatology and pathology of infantile scurvy. He states that the literature of pathology of the disease, including Barlow's classical account, is almost entirely devoted to a description of the lesions of the bones; little or no mention is made of the heart, the lungs, and other internal organs. On the clinical side attention has been focussed on the evidence of hæmorrhage—in the gums, beneath the periosteum, in the urine, etc. In his present paper he approaches the subject from a different point of view and attempts to show that both the pathology and the symptomatology have a broader scope and that the heart is not infrequently involved. In several instances definite cardiac enlargement was ascertained by means of physical signs and Röntgen examination. Necropsies also show that the heart in some cases is hypertrophied and dilated. The examinations made during life, as well as those carried out after death, demonstrated that this enlargement was mainly of the right ventricle.

Another symptom which should be accorded greater significance is œdema, which is almost always present to some degree. This occurs early in the course of the disease, and involves most frequently the eyelids. It is often manifested as a firm œdema over the lower end of the tibia, infiltrating the skin, and is readily overlooked, as it does not pit on pressure. This extravasation, which is due to nutritional disturbance of the smaller vessels, may also infiltrate the muscles. When this occurs in the thigh and causes swelling, it may be mistaken for the typical subperiosteal hæmorrhage.

It would also seem probable that the nerves are involved in infantile scurvy. The knee-jerks are increased, and there are indications of superficial tenderness of the limbs and neuro-œdema of the optic discs.

In the light of this symptomatology and pathology, infantile scurvy assumes actual relationship to beri-beri, in which the right heart is also hypertrophied and the nerves invariably involved. This correlation was emphasised still further by a dietetic test modelled after the treatment of beri-beri, which, as is well known, is brought about by a diet of polished rice which has been deprived of its pericarp, and is cured by the addition of rice polishings to the diet. In cases of scurvy, the addition of middlings—the pericarp of the wheat—caused in many instances a prompt amelioration of the symptoms, although it did not suffice to cure the disorder. This indicates the advantage of giving a cereal which contains the outer layers of the grain when the diet includes no other antiscorbutic food.

Brown (*Arch. of Ped.*, October 1915) discusses some new features in the diagnosis of scurvy, and refers to the metabolic changes occurring in the disease. He lays stress on X-ray examination as an aid to diagnosis. The first evidence of scurvy is the appearance on the plate of a "white line" between the shaft and the epiphyses of affected bones. The absence of subperiosteal hæmorrhage, as shown by Röntgen examination, does not exclude scurvy, as it has been shown that recently extravasated blood is very radiable, and only when the disease is well advanced and some organisation of the clot has occurred does it exhibit itself on the X-ray plate.

A high temperature with a polymorphonucleosis is not incompatible with a scorbutic condition, but occurs, on the other hand, only in the severe and most advanced cases, where a faulty diagnosis of pus is apt to be made, in which case the presence of the "white line" is a valuable aid to diagnosis.

The association between scurvy, rickets, tetany, and beri-beri is very intimate. The production of these various ailments occurs through the improper handling of our food-stuffs, altering the constituents in such a way as to completely upset the proper balance of mineral salts within the organism. Why rickets is produced in one case, tetany in another, and scurvy in another, it is impossible to state. In rickets the loss of calcium is definite, while the evidence at hand shows that in tetany sodium and potassium act as the irritating salts and calcium and magnesium as the sedatives. In scurvy the calcium retention is unexplained. It yet remains to be proven whether the vitamines are, as it were, the controllers of the mineral metabolism of the body. The *rôle* of the thyroid and parathyroid is purely that of assisting in the general metabolic processes.

ACIDOSIS IN CHILDREN.

Williams (*Brit. Journ. of Children's Diseases*, November 1915) gives a brief summary of 13 cases of acidosis in children between the ages of 3 years and 11 years. Acidosis is defined as the occurrence of certain organic acids in abnormal amounts in the blood and urine. β-oxybutyric acid is the chief body present, diacetic acid and acetone being derived from it by oxidisation. There is no evidence to show that there is any essential difference between acidosis occurring during the course of diabetes and acidosis due to other causes, viz. phosphorus or opium poisoning, acute yellow atrophy of the liver, eclampsia, recurrent vomiting of pregnancy, and delayed chloroform poisoning. The acetone bodies so called may originate from any or all of the three main classes of foodstuffs, but the balance of evidence goes to show that ordinarily they arise from the metabolism of fats, and in severe cases of diabetes from proteins as well. In several of the cases in the present series, fatty or other changes have been found in the liver post mortem. The symptoms were very varied, and in some cases suggested a diagnosis of pneumonia, cerebro-spinal fever, or ptomaine poisoning.

A study of the cases shows how a multitude of causes may combine to upset the normal metabolism of a child and cause the symptoms of acidosis, and how, in some cases where there is no other obvious cause to guide one, the symptoms caused by the acidosis may lead to an absolutely wrong diagnosis. It is therefore important in all cases of doubtful origin in young children that the urine should be carefully examined for diacetic acid and acetones, as well as for the *Bacillus coli.*

W. B. D.

DERMATOLOGY.

UNDER THE CHARGE OF

W. ALLAN JAMIESON, M.D., LL.D., AND R. CRANSTON LOW, M.B.

LUPUS ERYTHEMATOSUS OF THE MUCOUS MEMBRANES.

THE typical scaly red lesion of lupus erythematosus of the nose and cheeks is well known to most physicians, but the fact that the disease may affect the mucous surfaces is not so generally recognised. Culver (*Journ. Amer. Med. Assoc.*, 29th August 1915) recently records eleven cases where the mucous membrane was affected in all except one in addition to the skin lesion. The areas affected were the cheek pouches, gums, roof of mouth, lips, nose, and edges of eyelids. One of the characteristics of lupus erythematosus when it affects the mucous membranes is its persistency. The lesions are usually erosions which are covered with sodden epithelium and have a slightly raised irregular edge. The surface may be covered with a yellow coating or be whitish, as in leucoplakia. It is patchy but without papules, and has not got the network of whitish lines which are usually seen in lichen of the mucous surfaces. It is not so thickened as the lesion in leucoplakia. Occasionally it has the appearance of a recent erosion such as is produced by cauterisation. Mucous patches of secondary syphilis have a dirtier appearance. The late syphilitic lesions of the tongue are often very like lupus erythematosus, but are usually more thickened and tend to crack. Although very chronic in nature, lupus erythematosus lesions of mucous surfaces are liable to acute exacerbations, and these are usually associated with some gastro-intestinal derangement. It is not uncommon to see herpes simplex affecting the mucous membranes of patients with lupus erythematosus of the mucous surfaces. The herpes lesions are more congested, grouped, and present small cups where the vesicles have ruptured. The herpes lesions also do not leave scars. Lupus erythematosus of the lips may be painful, especially during an acute exacerbation. Culver noticed that in most cases of lupus erythematosus the gums are not in good condition. They often bleed easily, and show a good deal of gingivitis. Culver concludes that the acute exacerbations are probably dependent on toxæmias of gastro-intestinal origin.

He also is of opinion that lupus erythematosus is a general disease and that the skin and mucous membrane lesions are simply a manifestation of a deeper condition.

The gastro-intestinal derangement in these cases is very chronic and as a rule very difficult to cure, and Culver recommends that in order to prevent, as far as possible, recurrences, internal treatment of the gastro-intestinal condition should be undertaken.

PARAPHENYLENE-DIAMINE DERMATITIS.

Very many substances are known to produce an acute dermatitis when applied to the skin. Perhaps no group of such substances so often leads to irritation as the various forms of hair-dyes. Bunch (*Brit. Journ. Dermatol.*, September 1915) gives his experiences of several such cases. The scalp and face are naturally most frequently affected. The eruption is erythematous at first, but vesicles soon form. These burst, and lead to the formation of a "weeping" dermatitis. In severe cases the whole face swells, the eyes are closed, and the redness and œdema may spread down on to the neck and trunk. In some cases the dermatitis appears after the first application of the dye; in others only after its repeated use. In such cases the question of anaphylaxis arises, the absorption from the early applications sensitising the patient and so leading to the later reaction. If the person has previously suffered from an acute dermatitis from any cause, such an one is much more likely to react to any chemical irritant.

Hair-dyes such as a tincture or ointment containing walnut-juice will stain the hair various shades of black, but have the disadvantage of being too easily washed out with soap and water. But such dyes as paraphenylene-diamine and para-amidophenol are extensively employed by hairdressers because the desired tint can be obtained almost instantaneously and such dyes do not wash out. The staining of the hairs with these dyes is very thorough, the stain going right through to the medulla of the hair. On the other hand, vegetable dyes such as walnut juice and henna only penetrate a short distance, and therefore the permanency of the coloration is very much less.

Para-amidophenol is known commercially as "Rodinal," and the methyl-sulphate salt (metol) is extensively used in photography. The amidophenol compounds as well as the diamines are very easily oxidised in the air, but to ensure rapid oxidation, ten minutes before the dye solution is applied it is mixed with an equal quantity of peroxide of hydrogen. The head is first shampooed with soap and water, then the solution is applied with a brush and allowed to remain in contact with the hair for half an hour. The head is then washed again. The longer the time the dye is left on before washing off, the greater the risk of dermatitis.

The toxic substance in paraphenylene-diamine is chinondichlordiimin, which is produced by its oxidation. This substance is a violent irritant when applied to the skin, and is an immediate stage in the oxidation process which aids in a non-irritant end-product. Other substances produced in the process of oxidation besides the chinondichlordiimin probably also lead to part of the irritation. The final non-irritating substance produced by the oxidation of paraphenylene-diamine is called Bandrowski's base, and to this the darkening of the hair is due.

In addition to the local irritating effect of the derivatives of paraphenylene-diamine severe symptoms may be produced by absorption. Giddiness, tinnitus, clonic and tonic contractions, vomiting, and diarrhœa may occur. To minimise as much as possible such toxic effects, efforts have been made to modify paraphenylene-diamine without impairing its powers of coloration. Such products are known under the names of "Inecto," "Primal," and "Koorpa." These colour the hair quickly, and their toxicity is not great.

But in predisposed individuals the use of any dye containing paraphenylene-diamine is always risky. The dye should never be left on for more than half an hour, and then be thoroughly washed off. The dye should never be applied to hair which has been recently bleached with peroxide of hydrogen, which increases the permeability of the drug. Where an individual has a tendency to inflammation of the skin the best way is to paint a small area of the skin of the temple or behind the ear with some of the dye and cover it with collodion for twelve hours. If no irritation results from that, it is safe to use the dye for the hair.

The treatment of dermatitis due to dyes is naturally firstly to remove the irritant by washing, and then the application of soothing lotions where the skin is erythematous, and zinc paste, vaseline, or other bland ointment where there is crusting.

ACUTE DERMATITIS DUE TO COPRA DUST.

M'Leod (*ibid.*) reports six cases of dermatitis due to copra or broken cocoa-nut. Nine men were employed unloading a barge of copra, and of these only three escaped any skin irritation. A great part of the copra was rotten, and on being stirred up emitted a fine, brown dust. The dermatitis affected the hands, forearms, and face. The usual erythema and œdema, with itching and discomfort, was present on the face. The hands and arms showed in addition moist oozing patches. None of the dust or copra could be obtained for examination, but M'Leod thought that the dermatitis on the arms and hands might have been due to the copra-itch mite (*Tryoglyphus longior*), but that the dermatitis of the face was probably due to the irritation of the copra dust. That substance must therefore be added to the now very long list of substances which are likely to cause an occupation dermatitis.

TREATMENT OF NÆVI, ETC., BY DIATHERMY.

Now that diathermy (the use of heat produced by a high frequency current) is being recommended as a means of treatment for numerous diseases, it is right that the results of treatment by that method should be reported. Cumberbatch (*Arch. of Radiol. and Electrotherap.*, June 1915, p. 10) has used the method for treating vascular nævi, lymphangiomata, senile keratoses, etc. A vascular nævus is treated by inserting the electrode in several places and using a strong current. The heat generated causes a coagulation of the blood in the vessels. A strong current must be used, because some of the heat is dissipated by the circulating blood. The method has the drawback that the skin is cauterised where the electrode is introduced; and if the nævus be a large one and the electrode inserted in several places, a slough will result. There is also considerable risk of sepsis. Diathermy may also be used instead of the actual cautery for lymphangiomata and senile keratoses. For those who are accustomed using this method it may be quite convenient, but apparently the results are not any better and the scar formation just as great as when the actual cautery or ordinary electrolysis is used.

PEMPHIGOID ERUPTIONS FOLLOWING VACCINATION.

Mook (*Journ. Cutan. Diseases*, October 1915, p. 667), after a study of six cases of eruption after vaccination, comes to the conclusion that the type of eruption following vaccination and usually called vaccinia has altered within recent years. He thinks from an examination of his own and other published cases that the mortality is increasing, the period of incubation is becoming longer, and the consttutional symptoms more severe. He states that, following vaccination, we have a more or less symmetrical disease of the skin manifested by a great variety of lesions which may be divided into three groups—Group A, terminating in rapid recovery, with or without constitutional disturbance ; group B, continuing as a chronic, recurrent, vesicular, or bullous affection, with or without constitutional symptoms ; and group C. terminating rapidly in death. The incubation period may vary from three or four days to four months, the majority of cases developing in from three to five weeks. The vaccination may or may not have been successful. The benign cases show an eruption of small bullæ ; mouth lesions are sometimes present, and there may be slight or severe febrile disturbance. They may terminate in complete uncomplicated recovery in a few weeks, or recur as a vesicular or bullous eruption in crops over a period of years, as in dermatitis herpetiformis. The vegetating and scar-forming varieties are rare. Mook's own cases were all primary vaccinations. The eruption showed a predilection for certain areas, especially round the mouth, on the neck, extremities, and over the joints. The eruption may consist of small vesicles resembling chickenpox or smallpox, or of papulo-vesicles, and may become pustular. When bullæ are present they are usually clear and tense, rising from normal skin, but they may occur on inflamed or oozing areas. Hæmorrhagic bullæ are frequent. Circinate and concentric rings of bullæ may be present. In other cases there is a tendency to produce large gyrate patches of erythema resembling dermatitis herpetiformis lesions.

In order to try to determine the nature of this eruption in relation to a vaccinia infection inoculation experiments were performed. Two monkeys, a calf, several guinea-pigs and rabbits, were inoculated from the lesions, but in all the results were negative. Blood cultures from a fatal case and two recovered cases were negative under aerobic and anaerobic conditions, on agar and blood-serum agar. Numerous cultures from various bullous lesions yielded ordinary staphylococci, and sometimes the bullæ were sterile. Smears from one case showed diplococci, but the culture from this case showed staphylococcus. A mild or marked leucocytosis occurred early in all the cases, continuing in two of the fatal cases and disappearing in those recovering or having a tendency to relapse. In the later stages an eosinophilia appeared in some cases only.

R. C. L.

NEW BOOKS.

A Guide to Gynæcology in General Practice. By COMYNS BERKELEY, M.A., M.D., M.C.(Cantab.), F.R.C.P., and VICTOR BONNEY, M.S., M.D., B.Sc.(Lond.), F.R.C.S., M.R.C.P. Pp. xxiv. + 452. With 160 Illustrations. London: Henry Frowde and Hodder & Stoughton. 1915. Price 25s. net.

THIS is a work written by specialists for the busy practitioner, and does not profess to be a complete text-book on gynæcology. Looking at it from the point of view of the non-operating general practitioner it is, however, as complete as is desired in general practice. Probably most general practitioners would consider that it supplies a much-felt want, because most of the best known works on gynæcology are so much taken up with the technique and details of surgical operations that the busy family doctor wastes time in hunting for what is alone essential for him. The authors have accomplished what they set out to do in a very thorough and complete manner. If one were inclined to criticise, perhaps there is too much subdivision in the arrangement. This drawback, however, is amply made up for, when one comes to know the book, by a very full Table of Contents and Index, by differences in the type of the headings, and by an extensive system of cross-references.

The subject-matter is divided into five parts.

In Part I. we have the methods of examining the patient, which are very clearly and thoroughly given, and the splendid illustrations of this part of the work cannot fail to be of much help to the practitioner who wishes to become expert in physical examination.

Part II. is concerned with the significance of symptoms, whilst Part III. deals with the interpretation of physical signs. Both are very complete guides to the classification and differentiation of the various symptoms and physical signs that the patient may exhibit.

In Part IV. we have the treatment of the symptoms, etc., under much the same headings as the symptoms and physical signs are dealt with in Parts II. and III.

In Part V. we have, as far as we know, a new feature in a work of this kind. In a clear and concise chapter of thirty-three pages or so the medico-legal aspects of gynæcology are considered under such headings as Nullity of Marriage, Rape, Criminal Abortion, Evidence of Pregnancy or Delivery, Foreign Bodies left in Patient after Operations, and Claims for Compensation. There is little doubt that this will be found to be a most useful part of this work, more especially to those who, either as experts on the subject are called on to give evidence in Court, or to those more unfortunate members of the profession who have brought against them actions for damages by patients or others.

The book as a whole is amply illustrated, clearly printed on very good paper, and well bound, but we think that it would have been a handier volume if it had not been such a heavy weight.

On the whole we can thoroughly recommend this work, not only to general practitioners, but also to students in their clinical work as a companion to the more elaborate text-books on gynæcology.

Amnesia and Analgesia in Parturition (*Twilight Sleep*). By Alfred M. Hellman, B.A., M.D., F.A.C.S. Pp. 197. London: H. K. Lewis & Co., Ltd. 1915. Price 6s. 6d. net.

In this little book the author, Dr. Hellman, thanks the German clinicians for their unfailing courtesy, and his attending physician, Dr. Gustav Seeligmann, for his kindness in allowing him to use the obstetrical material at the Lebanon Hospital. As a result he is able to present the subject of the much-talked-of twilight sleep in parturition in a favourable light. He states that ether, chloroform, cocaine, opium, laudanum, chloral, and other substances almost without end have been tried and either discarded or relegated to a certain few selected cases; the twilight sleep is now "the method of choice for alleviating the pains of childbirth." Somewhat ingenuously Dr. Hellman adds that "ether and chloroform still have their uses with or without twilight sleep," and one may put it the other way—that twilight sleep may yet have its uses with or without chloroform or ether.

Applied Immunology. By B. A. Thomas, M.D., and R. H. Ivy, M.D. Pp. xvi. + 359. Philadelphia: J. B. Lippincott Co. 1915. Price 16s. net.

The object of this book, as set forth in the preface, is "to give a concise presentation of immunology in its entirety for the practical grasp and comprehension of students and practitioners." There can be no difference of opinion as to the desirability of this, because it is only through the education of practitioners in the general principles of this new branch of medicine that the irrational exploitation of serums, vaccines, and, even worse, of nostrums parading under pseudo-scientific titles by commercial houses, can be prevented. The book before us does not, however, appear to be entirely satisfactory. Briefly, its great fault is that it is too uncritical in its discussion of recent work, and in a subject like immunology, which is daily being added to, this detracts from its practical value. There is little doubt of two facts—first, that the science of immunology has already furnished us with methods of the greatest possible value; and, second—the other side of the shield—that a great deal of what is published, particularly on the therapeutic side, does not stand the test of time.

The various chapter headings show that an attempt has been made to cover the ground completely—the general principles of immunity; serums (including phylacogens); agglutinins and precipitins; the complement-fixation tests; the biochemical tests, such as Abderhalden's and the meiostagmin reaction; the specific cutaneous tests; tuberculin; the opsonic index, and vaccines are all discussed; and there is an appendix on the use of salvarsan, organic extracts, and animal serum in hæmorrhage. The impression left on the mind after reading the book is that the authors are unduly sanguine as to the benefits gained by these newer methods, and, as was said above, that they are not sufficiently critical as to their relative importance. The Widal reaction, for instance, is very briefly referred to, and the question of titration is scarcely mentioned at all. Yet it is scarcely possible to doubt that the value of the agglutination test in the diagnosis of the group of enteric fevers, especially in inoculated persons, will depend to a large extent on its being employed quantitatively instead of qualitatively. Turning to the sections on vaccines, the reviewer must confess that his experience (and he is not alone in this) is by no means so favourable as these pages suggest. Coli-vaccines, for instance, have not in general proved so useful in urinary infections as Drs. Thomas and Ivy assert; nor has the gonococcus vaccine in vulvo-vaginitis fulfilled all the expectations formed of it. And it is not unreasonable that this should be so, for infections on the surface of a mucous membrane are obviously less open to attack by vaccines than those which are enclosed in the tissues—pustules and boils, for instance. This question of the accessibility of the infecting germ to the protective substances in the body fluid has considerable practical bearing on the use of vaccines, yet we do not notice any special reference to it in the book. The sort of statement which arouses prejudice against the book as a practical guide is such a one as follows:—"The adoption of this procedure [prophylactic inoculation against gonorrhœa] is advisable . . . perhaps, to safeguard innocent newly-weds, under peculiar circumstances, where one of the contracting parties has recently convalesced from an attack of urethritis." Can it seriously be contended that this is practical medicine? The authors hold the scales evenly balanced between the sexes, and the reader whose imagination runs riot can figure to himself the bashful bridegroom receiving his prophylactic dose, "without absolute assurance," however, that it will be effective.

Practical Organic and Bio-chemistry. By R. H. A. PLIMMER, Reader in Physiological Chemistry, University of London, University College. Pp. xii. + 635. With 86 Illustrations. London: Longmans, Green & Co. 1915. Price 12s. 6d. net.

THIS is an extremely interesting work on physiological chemistry, in which the author treats his subject both from the animal and from the botanical side. A large portion of the text is devoted to the chemistry of biologically important organic substances. The sets of reactions appended to each substance of importance are excellent and very complete. Methods of preparation of typical organic substances, many of which will be found in few of the smaller works on organic chemistry, are included in this part of the book. There is a short account of some of the more recent work on colloids, and a very interesting section on enzymes, in which the author discusses methods of obtaining preparations of the better-known enzymes, with notes on their action and on the measurement of their activity. Under a section on the individual groups of proteins, blood, gas analysis, and the spectroscopic and microscopic examination of blood are dealt with. The book closes with an account of methods for the analysis of urine and of tissues. Appended are some tables and a list of reagents, but the usefulness of the latter is somewhat diminished by the lack of uniformity in the statement of quantities and a few numerical errors.

Under analysis of tissues are included some of the modern methods for the estimation of nitrogenous extractives—glucose, lactic acid, and the various acetone bodies in blood. In our opinion, the author gives undue preference to the method of Gardner and Maclean for the estimation of glucose in blood, as Bang's method, with a few modifications and reasonable care, gives very reliable results and only requires 0·1 to 0·2 c.c. of blood, while the method of Gardner and Maclean takes at least 1·0 to 2·0 c.c. The methods which the author selects for the quantitative analysis of urine are those likely to furnish accurate results, while in the main they are well within the capacity of the average student.

The book is exceedingly good, both in matter and arrangement, and is a valuable addition to the literature of biological chemistry. Adequate illustration and a good index enhance its value as a work of reference.

Pyelography. By WILLIAM BRAASCH, M.D. Pp. 323. With 296 Pyelograms. Philadelphia and London: W. B. Saunders Co. 1915. Price 21s. net.

IN this handsome volume Dr. Braasch gives us the results of his exceptionally large experience in the difficult and often highly dangerous procedure of demonstrating pathological conditions present in the kidneys and ureters by the injection into the pelvis and ureters of opaque solution and the subsequent taking of radiograms. The author claims that in cases of abnormal position, mechanical dilatation, inflammatory dilatation, renal and ureteric calculi, renal tumour, and congenital anomalies, pyelography is distinctly helpful in making a correct diagnosis, and with a record of a thousand cases accompanied by no serious accidents he is certainly in a position to speak with authority on a subject which he has made his own.

But the following points should be borne in mind :—The method is contra-indicated in hypersensitive and frail people, in cases of renal insufficiency, acute infections, and large hydronephroses. The procedure has to be carried out without the aid of an anæsthetic, *pain* being the only indication that the pelvis is being over-distended. The procedure is only *comparatively* harmless in skilled hands, the author himself having reported "three cases" operated on for hydronephrosis in which evidence of silver was found in numerous infarcts scattered in the renal parenchyma, whilst many other workers quoted report fatalities from such causes as rupture of a hydronephrotic sac, shock, and hæmorrhagic diathesis ; and whilst *collargol* is, so far as we know at present, the safest medium to use, it is by no means safe. From these, we can readily realise how chary we must be in employing this method of examination ; but whilst we may look with envy at the unrivalled opportunities Dr. Braasch has had for carrying out his important work, and congratulate him on his immunity from accidents of a serious nature, we may console ourselves with the reflection that clinical methods which are familiar to us all and which can be used without any risk to the patient are still at our disposal, and that it will be necessary on only very rare occasions to resort to pyelography to confirm our diagnosis.

Careful directions are given as to technique and the danger of the operation insisted upon, whilst the beautiful series of radiograms will prove an invaluable guide to those who, having less experience than Dr. Braasch, will find the interpretation of their own skiagrams the most difficult part of the whole procedure.

Post-Mortem Methods. By J. MARTIN BEATTIE, Professor of Bacteriology in the University of Liverpool. Pp. 223 and Index. With 16 Illustrations. Cambridge : University Press. 1915. Price 10s. 6d.

IN this volume the author sets forth definite methods of conducting post-mortem examinations, which have recommended themselves to him during a lengthened experience as a hospital pathologist.

The book is in no sense merely a compilation, as small post-mortem manuals are apt to prove, but it embodies so much of Professor Beattie's own experience that even the practised pathologist should benefit by careful perusal of it. We refer especially to the sections dealing with bacteriological and experimental investigations.

A chapter which should prove of value to the young pathologist, and to the practitioner who conducts only an occasional post-mortem, is that on the examination of special cases, which gathers together under a given disease all the important lesions which should be looked for, and suggests the best methods of investigation to be adopted.

As was to be expected, special attention is directed to the bacteriological investigation of cases after death.

A useful appendix contains descriptions of the more important methods for preserving tissues, and for preparing microscopic sections and culture media.

In the text we note a considerable number of errors which have escaped detection during the proof reading.

The New Psychiatry. By W. H. B. STODDART, M.D., F.R.C.P. Pp. iv. + 66. London: Baillière, Tindall & Cox. 1915. Price 3s. 6d. net.

OUR readers are already familiar with the contents of this book, for it appeared in the *Journal* in a slightly abbreviated form this year as the Morison Lectures.

The book is too compressed to be of much use to one who wishes to begin the study of Freud's methods, and its value lies in the fact that it is an epitome of the views of a prominent English psychiatrist on the subject.

Dr. Stoddart recognises that in unskilful hands psycho-analysis is capable of doing much harm. The same may be said of most forms of real treatment. Here it would be specially strange if injury had not sometimes been inflicted, for, leaving aside the neurasthenics and hysterics, the class of patients dealt with have hitherto received no real treatment at all, and in the beginnings of most things blunders are committed.

The author is a whole-hearted follower of Freud, but it might be pointed out that the latter is given credit for being the original discoverer of certain things, when in truth he has only changed their names, as in the case of his so-called separation of neurasthenia from the anxiety neurosis. The latter is nothing but a new name for what is generally known as neurasthenia, the former is an attempt to revive for some cases of that disease the old theory of exhaustion due to masturbation.

Wish Fulfilment and Symbolism in Fairy Tales. By Dr. FRANZ RICKLIN of Zurich. Authorised Translation by Dr. W. A. WHITE. Pp. 90. New York: The Nervous and Mental Disease Publishing Co. 1915. Price $1 net.

THE ordinary child often thinks it is not having as good a time as it ought—not nearly as good as its brothers and sisters. Seeking an explanation, it conceives the idea that probably it is not a member of the family, the mother is a stepmother, the brothers and sisters stepbrothers and stepsisters. The mother favours her own children. The family is managed more by the mother than the father, who remains, therefore, as father but unimportant. In the future the truth will out, and the poor neglected one come to its rightful heritage.

If this is a common story of childhood, and conversation with a number of adults leads to the belief that it is, it is assuredly also the story of Cinderella and a host of other fairy tales; and this is the main part of the author's thesis. The fairy tale is then the fulfilment of a wish. Possibly, however, the child's idea that it is not a member of the family is one that it may have acquired from reading fairy tales—a practice universal in childhood. Then the thesis would fall to the ground. If the author's view is correct, the child must remember chiefly what is disagreeable in its life and forget what is pleasant, which is opposed to a main Freudian doctrine. Freudians, however, keep their minds in watertight compartments.

The symbolism dealt with in the book is of the usual type. A horse, a dog—especially a large brown one—a swan, a frog, a snake, a fish, the very lilies of the field portrayed in the hands of the Virgin by the old masters are phallic symbols. There is truly no terrestrial object which in Freudian literature has not this significance.

Diseases of the Throat, Nose, and Ear. By WILLIAM H. KELSON, M.D., B.S., F.R.C.S., Surgeon, London Throat Hospital, Golden Square; Lecturer on Diseases of the Ear, Polyclinic. Pp. 269. With 106 Illustrations. London: Henry Frowde and Hodder & Stoughton. 1915. Price 8s. 6d. net.

THIS book, published for the benefit of general practitioners and senior students, contains much useful and up-to-date information on the subjects under discussion. Those chapters dealing with diseases of the inner ear might, with advantage, have gone a little more deeply into the subject. The author goes fully into the pros and cons of tonsillotomy and tonsillectomy, and describes the operations, but we think that a large number of operators will not agree with his statement that in operations for the removal of both tonsils and adenoids it is better to remove the adenoids first. The book is profusely illustrated, and contains several excellent plates of X-ray photographs. It is perhaps a pity that Dr. Kelson has not seen his way to include a picture of the normal larynx. This would have been of use to students to enable them to contrast the illustrations of pathological conditions with those of the normal. The book may be confidently recommended to those for whom it is intended.

Diseases of the Nose and Throat. By ALGERNON COOLIDGE, A.B., M.D., Professor of Laryngology in the Harvard Medical School. Pp. 360. With 68 Illustrations. Philadelphia and London: W. B. Saunders Co. 1915.

DR. COOLIDGE'S book is written as a guide to the student or practitioner of medicine in his clinical work, and as such ought to prove most useful. The chapters on diseases of the accessory sinuses, though necessarily short, are good, though we note that, as a guide to the diagnosis of chronic empyema of the maxillary antrum, the posture test is not mentioned. In the treatment of an attack of false croup the author recommends, together with steam inhalation, vinum ipecacuanhæ in doses of one drop for each two years of a child's life, a dose that appears exceedingly small when given with the object of cutting short an attack.

A chapter is included on bronchoscopy and œsophagoscopy, and another on therapeutics which contains some useful prescriptions. The illustrations are numerous, but are not up to the general standard of the book.

Views on Some Social Subjects. By Sir DYCE DUCKWORTH, Bart., M.D., LL.D. Pp. 320. London: George Allen & Unwin, Ltd. 1915. Price 7s. 6d. net.

THIS volume consists of reprints of addresses and lectures delivered on various occasions, and dealing with many topics of interest. They well deserve to be gathered together and preserved in a permanent form. They embrace, among other matters, remarks to university students, to naval medical officers, a forecast of the position of women in the twentieth century, and critiques on that curious perversion which goes by the name of Christian Science or Faith Healing. No question is too trivial, since even dust comes in for consideration. The author holds to the view that alcohol in moderation and with meals is of benefit to those who can and do so use it. As would be expected from one so accomplished, all are handled in a captivating style, and no one could rise from their perusal without deriving therefrom information of value. Those for nurses and on nursing might well be republished separately and presented to sisters as reminding them of many points of great importance for their future successful career. Sir Dyce supports the recognition of the dignity of the medical profession, and maintains that, as compared with law and theology, the general public do not award it the respect it deserves. It may be that the fear which the former of these inspires, and the reverence paid to the second, are in a great measure absent in the case of the doctor, but it is true that he hardly receives that consideration from his patients which his education and his relationship to them demands. Throughout the volume a vein of sincere and unobtrusive piety flows. He deplores the decadence of Sunday observance and of family worship. This was written before the war. It would seem as if a more serious tone is passing over the country, and should this prove permanent, the loss in blood and treasure we have sustained may in the end be the salvation of the nation.

Handbook of Massage for Beginners. By L. L. Despard. Pp. 247. With 88 Illustrations. London: Henry Frowde and Hodder & Stoughton. 1915. Price 6s. net.

With a view to providing a book of convenient size for students who are taking up the practice of massage with the object of helping the wounded soldiers in military and convalescent hospitals, Mrs. Despard has written this excellent work. It is mainly drawn from the author's larger *Text-book of Massage*, which was favourably noticed in these pages when it appeared, but special sections have been introduced dealing with the treatment by massage of the after-effects of war injuries.

Instructions are also given for the management of various medical affections of the heart, abdominal organs, and nervous system, and a section is devoted to medical electricity.

A glossary is added for the benefit of students who have not had opportunities of becoming familiar with anatomical and other technical terms used in the text.

We confidently recommend this work.

Practical Prescribing and Treatment in the Diseases of Infants and Children. By D. M. Macdonald. Pp. 199. London: Henry Frowde and Hodder & Stoughton. 1915. Price 5s. net.

It is impossible in a book of this size to deal satisfactorily with the treatment of the diseases of children. For those who have not the time to study a text-book on the subject, it contains many practical hints of value shortly and clearly expressed. The chapter on diseases of the eye is concise and helpful. Dr. Sutherland's chapter on tuberculosis is a most interesting summary of the diagnosis and treatment of tuberculosis, but fails absolutely to convey to the reader the manifestations of the disease specially met with in infancy and childhood, and their treatment.

The Etiology of Typhus Exanthematicus. By HARRY PLOTZ, PETER K. OLITSKY, and GEORGE BAEHR. Pp. 68. Reprinted from *The Journal of Infectious Diseases.* July 1915.

WHILE much confirmatory work will undoubtedly require to be done before the bacillus, which the authors claim to be the cause of typhus fever, is definitely recognised as such, it may be said at once that a very plausible case has been made in these pages in favour of their contention. The micro-organism originally isolated by Plotz, and which has some resemblance to that described by Ricketts and Wilder, is a small pleomorphic, Gram-positive bacillus, not motile, not encapsulated, and not acid-fast. It is cultivated by anaerobic methods. It was isolated from every one of seven epidemic cases examined, and from 34 out of 37 of the so-called endemic cases known in America as Brill's disease. Serological studies by complement-fixation, agglutination, and similar methods go far to confirm the view that the bacillus is really responsible for the fever, and experiments on animals point in the same direction. The book is a valuable record of systematic investigation, and we hope that further evidence will soon be forthcoming to establish the claim of its authors.

John Shaw Billings: A Memoir. By FIELDING H. GARRISON, M.D. Pp. 432. New York: G. P. Putnam Sons. 1915. Price 10s. 6d.

THIS is a biography, interesting, naturally, in the first place, to the American reader, but as it deals with a well-known pioneer in medical bibliography, valuable also to everyone interested in the development of medical knowledge. The earlier chapters afford an illuminating sidelight upon the medical arrangements of the American Civil War, and the later ones deal with Billings' work on the *Index Medicus*, in the founding of the Johns Hopkins School, and in various literary organisations. Containing frequent quotations from the writings of the subject of the memoir—not too extended in length—the narrative is always fresh, direct, and attractive, and well repays perusal without skipping, for there are no dull parts in this very busy life.

Old London's Spas, Baths, and Wells. By SEPTIMUS SUTHERLAND, M.D. Pp. 169. With 36 Illustrations. London: John Bale, Sons & Danielsson, Ltd. 1915. Price 7s. 6d. net.

THIS book forms an expansion of an address to the Balneological Section of the Royal Society of Medicine, and gives an excellent short account of London's medicinal and drinking waters of the past. From a medical point of view it provides some valuable information in regard to the constituents of the different spa waters in and round the metropolis; and to the curious its pictures and its antiquarian notes afford interesting commentaries upon the manners and customs prevailing among the Londoners of by-gone generations.

NEW EDITIONS.

A Manual of Midwifery. By THOMAS WATTS EDEN, M.D., F.R.C.P. (Lond.), F.R.C.S.(Edin.). Fourth Edition. Pp. 777. With 359 Illustrations. London: J. & A. Churchill. 1915. Price 16s. net.

THE fact that this manual of midwifery has reached its fourth edition is sufficient evidence of its being well adapted for the student's needs. The difficulties of an author begin with his new editions, as the advance of obstetric knowledge leads to the necessity of additions to bring them up to date, and it taxes the wits of most authors to do so without rendering a new edition heterogeneous and contradictory. Dr. Eden has, however, managed his new material with great success, and brought it in without disturbing too much the harmony of his original arrangement. This is well seen in the development of the amnion, where the facts of Peter's ovum are employed. The same may be said of the view given of the origin of the cord; but did His not term its early stage originally the body-stalk (*Bauchstiel*)?

The toxæmias of pregnancy are considered together as a whole and this is probably the best way.

In regard to the date of labour, it is still confused with the duration of pregnancy, which, of course, is quite unknown.

The description of the bony pelvis is taken up in p. 254, but surely this is a late stage for the student to consider it.

Lahs' theory is given as a cause of flexion at the beginning of labour. A study of frozen sectional anatomy of the various stages of the mechanism of labour shows, however, that there is no increase of flexion, but rather a decrease, and thus the movement which Lahs attempted to explain does not occur. It is also unsatisfactory in explaining internal rotation. The author makes the shape of the pelvic floor the cause of this movement, and nowhere draws special attention to the results of the pressure of a lateral half of the posterior segment. The author speaks of the shape of the pelvic floor as causal in rotation, but the canalising pelvic floor has the shape the advancing head and its own structural anatomy give it, and is not a primitive thing like a curved tunnel. The author's explanation is laboured on these points. The statement that in anterior positions backward rotation may occur is as remarkable as it is improbable. In an L.O.A. unrotated marked extension of the head could have no effect in bringing about posterior rotation. It has, of course, in primitive posterior positions; but then the deep sinciput gets the lateral pelvic pressure, and is thus turned forwards.

The author and publisher have done their work with great credit, and there are very few typographical errors. Shaudinn for Schaudinn may be noted as a slight one.

Exercise in Education and Medicine. By R. TAIT M'KENZIE, M.D. Second Edition. Pp. 585. With 478 Illustrations. Philadelphia and London: W. B. Saunders Co. 1915. Price $3.50 net.

ALTHOUGH the Royal Commission on Physical Training did something to stimulate interest in the hygienic and educational value of exercise, our universities, unlike those of America, still lack professors of physical education, and our medical students receive little or no instruction in remedial gymnastics. To any medical man who realises the deficiency of his education in this respect, Dr. Tait M'Kenzie's *Exercise in Education and Medicine* may be cordially recommended as one of the best introductions to the subject. The first edition was favourably reviewed in these pages four or five years ago. The second edition, which has just been published, has been thoroughly revised, and much of it has been rewritten. The original single chapter on the physiology of exercise has been expanded into four, and new chapters have been added on respiratory gymnastics, the treatment of visceroptosis, and functional disorders of the nervous system. Nearly half the book is devoted to the application of exercise to medical treatment. The remaining portion describes the chief systems of physical training, such as the Swedish system, the German system, and the war of systems in France; the organisation of municipal playgrounds and baths; and the physical training of children, young men and young women, the blind, the deaf-mute, and the mentally defective. A specially interesting new section, which contains some striking illustrations, describes the eurythenics of Jacques Dalcroze. There is little in the book that calls for criticism, but it is evident that the author is more familiar with youth than with childhood. We think it would add to the value of the book if space were found in the next edition for a fuller critical account (including *syllabi*) of the diverse schemes of physical training which are referred to as in operation in the schools of different States. More emphasis, also, should be laid upon the value of exercise in the treatment of many children's diseases, such as rickets and adenoids (*e.g.* after operation). Exception may be taken to some of the statements on page 436 with regard to posture in writing. The copious index contains 18 references under obesity, but gives no reference to adenoids, chest deformities, mouth breathing, or pigeon breast. These remarks indicate that the chief faults of Dr. M'Kenzie's book are faults of omission. Taken as it stands, the present edition is a distinct improvement upon the first, and the first was quite worthy of Dr. M'Kenzie's high reputation.

Treatment of Internal Diseases, for Physicians and Students. By Professor NORBERT ORTNER. Edited, with Additions, by NATHANIEL BOWDITCH POTTER, M.D. Translated by FREDERICK H. BARTLETT, M.D. Third Edition in English, revised from the Fifth German Edition. Pp. 645. Philadelphia and London: J. B. Lippincott Co. 1915. Price 21s. net.

THIS standard text-book carries out faithfully the profession made in the title. It deals solely with the treatment of disease, pathological details only being discussed when they have an important bearing on rational treatment. The author emphasises throughout the volume the importance of mechanical, dietetic, climatic, hydrotherapeutic, and other extra medicinal methods, with judicious reasons for their selection, and then discusses the applicability of certain drugs, with their advantages, disadvantages, and limitations. Each chapter concludes with a list of formulæ which have been found useful in the author's experience, and these are stated both in the English scale of measures and their metric equivalents. The reader is thus left well equipped to meet every etiological indication and the various contingencies that arise and require symptomatic treatment.

Copious and useful notes have been added by the editor, and it is curious to observe that it is only in these notes, with very few exceptions, that any reference is made to the therapeutic work done by English physicians, or any cognisance is taken of English health resorts and watering-places. As the book is translated and edited in America, there are long lists of suitable American watering-places and sanatoria for different types of disease. While the place of surgery is usually well recognised throughout the book in the treatment of disease, we cannot agree with the author when he states that two-thirds of the cases of appendicitis can be satisfactorily treated without recourse to surgery.

Common Disorders and Diseases of Childhood. By GEORGE FREDERIC STILL, M.D., F.R.C.P.(Lond.). Third Edition. Pp. xvii. + 843. London: Henry Frowde and Hodder & Stoughton. 1915. Price 16s. net.

IN reviewing previous editions of Dr. Still's book we have expressed a high opinion of its merits. It is without doubt one of the best guides to the study of diseases of children at the present day, and it is no matter for surprise that successive editions are called for at comparatively short intervals. On comparing the text of this with the second edition we find that there are very few alterations. A good many paragraphs have been added, dealing chiefly with treatment, but it has not been found necessary to omit any passages. Thus the original matter has well stood the test of time. The principal difference between this and the last edition is the insertion of two new chapters dealing with tuberculous glands in the neck and with cœliac disease respectively. Dr. Still adopts the view that tuberculous milk is responsible for a large majority of cases of tuberculous cervical glands, and is less conservative as regards operation than many physicians. It is to be hoped that his opinions will obtain the notice they deserve. Cœliac disease, although its exact nature remains uncertain, is undoubtedly a sufficiently definite clinical type to warrant separate reference, especially as success in treatment hinges on its recognition, and this chapter is a welcome addition to the book. Dr. Still, however, has apparently been less fortunate than others in his results with pancreatic extracts in this disease, in some cases of which holadin and similar preparations seem unquestionably to have been of service.

We hope to see Dr. Still's book run through many further editions.

Text-Book of Physiology. By W. H. HOWELL, Ph.D., M.D., etc. Sixth Edition. Pp. 1043. Philadelphia and London: W. B. Saunders Co. 1915. Price $4.

OUR pleasure in welcoming a sixth edition of this favourite text-book is tempered by noting a further increase in size. True, it only amounts to some 20 pages, but 20 pages at the end of 1000 is no light matter when a teacher is confronted with the necessity of recommending a text-book, and we fear that in many instances this excellent guide will be passed by merely on account of its size. We repeat our amazement, expressed in reviewing former editions, that such a bulky volume contains no information on the subject of voice production. On page 460 we note the curious word "peotonization," and on page 482 we would prefer some other word to *intermittent* as applied to the arterial blood-flow, in view of the confusion which frequently occupies the student mind in this connection.

We have nothing but praise for the general excellence of the book. We have re-read with pleasure the laudable aims of the author in his original preface, and while we sympathise heartily with the difficulties of short presentment which are indicated in the present preface, we still hold strongly that, at least as a students' text-book, the book would be improved by being shortened.

Morphology and Anthropology, By W. L. H. DUCKWORTH, M.A., M.D., Sc.D. Vol. I. Second Edition. Pp. 304. With 208 Illustrations. Cambridge: University Press. 1915.

IT is about ten years ago that the first edition of Dr. Duckworth's *Handbook of Morphology and Anthropology* appeared. In the meantime much new knowledge has been obtained, and the introduction of a summary of this into the handbook has necessarily increased its size and has caused its division into volumes, of which Vol. I. alone is at present published. It deals with the subject-matter of section "A" of the first edition—that is, with the comparative anatomy and morphology of the Eutherian mammals—but the whole section has been entirely rewritten, greatly added to, and more completely illustrated. The extent of the increase can be gauged by the fact that section "A" in the first edition occupied 154 pages, whilst as volume one of the new edition it extended to 304 pages. This, however, is not a disadvantage, for the reader will find that increase of text to be read is more than compensated for by the new figures and the greater clearness and completeness of exposition which has been gained. It is quite certain that the author will receive many congratulations on the improvements and additions he has made, and upon the admirable manner in which he has set forth the main facts and theories concerning a difficult but interesting subject.

Fatigue. By A. MOSSO, Professor of Physiology in the University of Turin. Authorised translation by MARGARET DRUMMOND, M.A., and W. B. DRUMMOND, M.B. Third Edition. Pp. xiv. + 334. London: George Allen & Unwin, Ltd. 1915. Price 2s. 6d. net.

MOSSO'S *Fatigue* is a classic in its own language, and, thanks to the scholarly rendering of its translators, it is likely to attain the same dignity in ours. It may quite safely be said that few translations into English bear less mark of foreign idiom than the book before us. The main outlines of Mosso's work on fatigue are well known. He was one of the first to study the subject comprehensively and systematically, and all later researches have tended to amplify rather than supersede his results. His book is of permanent value also as a storehouse of curious and interesting facts bearing on fatigue, drawn from his observations on animals and men, from information furnished him by friends and colleagues, and from biographical and autobiographical records. The author's way of dealing with his material suggests that his mind has something of the amplitude which characterised the minds of the men of the Renaissance, to whom he so often alludes. By turns he is physician, naturalist, mechanical inventor, pedagogue, and artist; by nature, or through study, he displays his theme so that the reader now grasps his meaning easily and without fatigue. The agonies of the young professor meeting his class for the first time are portrayed with skill, and their results measured with accuracy; the existence in Italian universities of a system which admits of lectures extending to an hour and a half or two hours gives Mosso opportunities for studying fatigue which he could scarcely find in England. His observations on the fatigue of examiners after conducting oral examinations are suggestive and interesting. What is perhaps the most important conclusion to be drawn from his work, so far as pedagogues at least are concerned, is that fatigue is a general affection of the organism, and that therefore the combination of strenuous physical and mental work is especially deleterious to children. A boy cannot without harm work off the effects of reading for an examination by playing hard in the first fifteen. Practical experience amply confirms this opinion.

Professor Mosso's book appeals to a wide circle of interests, and is now appropriately issued in this third, cheaper, edition.

Squint: Its Causes, Pathology and Treatment. By CLAUD WORTH, F.R.C.S. Fourth Edition. London: John Bale, Sons & Danielsson, Ltd. 1915. Price 6s. net.

THIS new edition of Mr. Worth's well-known book does not contain a great deal that is new. This is no doubt explained by the fact that Mr. Worth's views regarding the etiology and treatment of squint have been based on an exceptionally wide clinical experience. One of the chief merits of Mr. Worth's book is that the author has contrived to treat an involved and difficult subject from a simple and practical point of view. We do not consider that the difficulties regarding the etiology of squint are all solved by his theories regarding the development and importance of the fusion sense, but we fancy that most ophthalmic surgeons feel much indebted to him for the new light which his work has thrown on the relation of the fusion sense to the development and cure of squint. In reading over this volume we cannot help feeling that Mr. Worth does not now lay quite the same stress on fusion training as he formerly did, but is a more pronounced advocate of operation.

As is well known, he has practically abandoned tenotomy in favour of advancement. By the careful application of a well-planned technique he appears to have obtained in a large series of cases results which seem almost perfect. In the actual method of operation there does not appear to be anything essentially new, and Mr. Worth's brilliant successes as an operator must, we think, depend most of all on the perfect way in which he carries out the operation known by his name.

This is a work which every ophthalmic surgeon should possess.

Alcohol and the Human Body. By Sir VICTOR HORSLEY, F.R.S., Major R.A.M.C., and MARY D. STURGE, M.D.(Lond.). Fifth Edition. Pp. xxviii. + 339. With 41 Illustrations. London: Macmillan & Co., Ltd. 1915. Price 1s. net.

STATESMEN as well as the general public owe a large debt of gratitude to the authors of this valuable little book. This (the fifth) edition brings the knowledge of the subject up to date. The book is well written and every page is full of interest. It deals with facts rather than theories. Although several of the chapters record scientific and anatomical facts illustrative of the effects of alcohol on the various tissues and organs of the body, these are so clearly stated that the public will not find it difficult to understand and to follow with interest what is described. It records the influence, not only of large but of moderate (so-called dietetic) quantities of alcohol, specially in relation to their influence on the higher functions of the brain, viz. the judgment, self-control, and the moral sense. Those who have not been following scientific investigations which have been made during the last fifteen years will be amazed to find that old ideas regarding the properties and actions of alcoholics as articles of diet or as medicinal agents have been absolutely wrong, that their economic power as work producers is a minus quantity, that the feeling of well-being which follows their use is obtained at too great a cost, and that even when taken in small quantities their effect is to warp the judgment. Military authorities, who still believe in the use of alcohol for the production of heat or for increasing the amount of work, should study Chapter XVIII. —Alcohol in the Services. Those interested in eugenics and the future of the nation would find valuable experiences recorded in Chapters XV. and XIX. on Parental Alcoholism and Influence of Alcohol on National Health respectively. On the page opposite the beginning of each chapter there are noted the *dicta* of men of mark whose opinions and experiences are valuable—Admirals, Alienists, Field-Marshals, Philanthropists, Physiologists, Scientists, Statesmen.

The Illustrated Medical Dictionary. By W. A. N. DORLAND. Eighth Edition. Pp. 1137. Philadelphia and London: W. B. Saunders Co. 1915.

A MEDICAL dictionary is one of those books which it is impossible to keep thoroughly up to date, but that the author of the present well-known work does his best is shown by the fact that although the seventh edition was published so recently as 1913, the present or eighth edition contains 30 more pages. A specially useful feature of the work is the series of tables of arteries, bacteria, baths, muscles, nerves, etc. Under treatment we find more than 130 entries, while the table of tests extends to 17 pages. The print is small but clear, and the illustrations add to the attractiveness of a book of which it may be safely said that anyone in want of a medical dictionary might go farther and fare worse.

The Psychoneuroses and Their Treatment by Psychotherapy. By Professor J. J. DÉJÉRINE and Dr. E. GAUCKLER. Translated by SMITH ELY JELLIFFE, M.D. Second Edition. Pp. 395. Philadelphia and London: J. B. Lippincott Co. 1915. Price 18s.

THIS book was fully reviewed in this *Journal* two years ago. The present edition is not a mere reprint, but has been carefully revised. The various errors which were present in the first edition appear to have been corrected. The book can be thoroughly recommended.

NOTES ON BOOKS.

MESSRS. HODDER & STOUGHTON have published, for the University of London Press, Sir Almroth Wright's lecture on *Wound Infections* (price 2s. 6d. net), which was delivered before the Royal Society of Medicine and has already appeared in the medical journals. It is not necessary to be convinced of the soundness of Sir Almroth's doctrines to admire the ingenious experiments on which they are based and the enthusiasm with which he supports them. Clearly the last word has not yet been said on the *rôle* of chemical antiseptics in the treatment of the wounds of war, nor has the experience of the last few months justified all the claims put forward for hypertonic solutions and lymph lavage. It will probably be found that by a judicious combination of chemical antiseptics and "physiological methods" we shall approach a solution of the serious problem of wound infections.

No doubt the popularity of Murphy's *Surgical Clinics* has induced the publishers to issue *The Medical Clinics of Chicago* (W. B. Saunders Co.) as a bi-monthly publication. The first part, for July 1915, contains a number of articles of interest treated from the purely clinical standpoint. They are, indeed, just such clinical studies as we in this school have been favoured with by Dr. Byrom Bramwell, and we do not doubt that the American enterprise will prove as useful as its Scottish prototype.

The *Transactions of the American Pediatric Society* recording the proceedings of its twenty-sixth session, contains a number of papers of considerable interest. A specially commendable feature of the transactions is the extremely full reports of the discussions on the papers (to judge from internal evidence they are given *verbatim*), which are usually valuable, and sometimes even more illuminating than the communications which raise them. This annual volume always provides an excellent index of the trend of American work on diseases of children, and we welcome it accordingly.

Philip's Popular Mannikin (George Philip & Sons, 3s. 6d. net) is an excellent model of the human body designed for the use of school teachers and students of elementary anatomy and physiology. The new edition is highly creditable to the British workmanship by which it is produced.

Oxford War Primers.—Nerve Injuries and Shock (price 3s. 6d. net), by Dr. Wilfred Harris, presents a most useful description of those conditions of nervous exhaustion, neurasthenia, and functional paralysis which have been so frequently met with as a result of shell explosions. Part I. deals with the direct effect of injuries of the nervous system, and Part II. with nervous shock following cerebral injury. The author lays considerable stress on the value of suggestive treatment in cases of nervous shock.

The scope of Col. J. Edward Squire's *Medical Hints for the Use of Medical Officers Temporarily Employed with Troops* (pp. 128, price 2s. 6d. net) is fairly indicated by the title, and it contains in a small compass a good deal of elementary information about ordinary ailments. It will no doubt be useful to some of the recent graduates who are now entering the R. A. M. C., but any fairly well-educated medical man, with a quite moderate experience in his profession, should be able to dispense with it. In connection with the diagnosis of enteric fever by the Widal test, there ought to have been some reference to the fallacies introduced by previous antityphoid inoculation.

Dr. T. J. Horder's *Cerebro-spinal Fever* (pp. 179, price 3s. 6d. net) merits nothing but praise. It seems to us one of the best short accounts of all the aspects of the disease that we have read, and it ought to be carefully studied by all medical officers in charge of troops. A good many years have elapsed since cerebro-spinal fever was epidemic in this country, and even then the epidemics were limited as regards area, so that a great many men must be quite unfamiliar with the disease. Its early recognition in camps and barracks is of the greatest importance, both from the point of view of the treatment of the individuals affected, and the prevention of the spread of the disease, and Dr. Horder's little manual gives all the requisite information in a most practical way. This is a thoroughly good book.

The Stretcher-Bearer, by Georges M. Dupuy (price 2s. net), consists of a series of 138 photographs illustrating the various movements in stretcher-bearer exercises, and in the handling of wounded men. It is designed to supplement the Royal Army Medical Corps Training Book, and admirably fulfils its purpose.

A volume has been devoted to the special subjects with the object of assisting medical officers who have not had any extensive experience in dealing with *Injuries of the Eye, Nose, Throat, and Ears* (price 2s. 6d. net).

The section on the Eyes, by Dr. A. Maitland Ramsay, is admirably planned and expounded in sufficient detail to render it most helpful. The chapter on sympathetic ophthalmia should be carefully studied by all who may have eye cases under their care.

Injuries of the Nose and Throat are dealt with by Drs. J. Dundas Grant and W. Lawson Whale in a brief but sufficient manner. A selection of illustrative cases is appended.

Injuries of the Ear are disposed of in a few pages by Mr. Charles Ernest West.

BOOKS RECEIVED.

Beesly, L., and T. B. Johnston. A Manual of Surgical Anatomy (*Frowde, Hodder & Stoughton*) 12s. 6d.

Berkart, J. B. The Pathology and Treatment of the So-called Nervous Asthma (*Oxford University Press*) 2s. 6d.

Costa, B. F. B. da, J. F. Sant'anna, A. C. D. Santos, and M. G. Alvares. Sleeping Sickness . . . . (*Bailliere, Tindall & Cox*) 7s. 6d.

Ghon, A., and D. B. King. The Primary Lung Focus of Tuberculosis in Children (*J. & A. Churchill*) 10s. 6d.

Jack, Wm. R. Wheeler's Handbook of Medicine. Fifth Edition . (*E. & S. Livingstone*) 8s.

Mitchell, S. Weir, Memorial Addresses and Resolutions in Commemoration of (*Philadelphia*) —

Osler, Sir Wm., and Thos. M'Craw. A System of Medicine. Vols. I.-V. Second Edition (*Frowde, Hodder & Stoughton*) 35s. net per single volume; per set, £7, 15s.

St. Thomas's Hospital Reports, 1915. Vol. XLII. . . . . . . (*J. & A. Churchill*) 8s. 6d.

Thirty-Eighth Annual Report of the Board of Health, New Jersey, 1914 . . . . —

Transactions of the American Urological Association, 1915. Vol. IX. (*Riverdale Press, Brookline*) —

EDINBURGH
MEDICAL JOURNAL.

EDITORIAL NOTES.

The Late Sir William Turner.

We are indebted to the Professor of Anatomy for the appreciation of Sir William Turner which appears on another page. We cannot, however, allow this occasion to pass without expressing on behalf of the *Journal* our deep sense of the loss which we in common with the Medical School of Edinburgh have sustained by the death of the Principal of the University. We recall with satisfaction that much of Sir William's best work first appeared in our pages, and we gratefully acknowledge the interest he continued to take in the *Journal*.

By our younger readers, who had not the privilege of coming directly under the influence of Sir William Turner as a teacher, he will be remembered as the head of the University, guiding and co-ordinating the manifold activities of its various faculties —the directing spirit in all the movements which, during his Principalship, have so greatly extended the influence of the University in scientific, literary, and artistic education.

They will recall his public appearances as he introduced a new professor, or addressed the graduates at a Graduation Ceremonial, or as he read the lessons at the University services, reading with such expression as to impart a fresh meaning to even the most familiar passages of scripture.

Thus will they have been impressed with the strength of his character, the alertness of his mind, and the power of his language. They will have realised that when the Principal spoke, every word had its proper place, every accent its value, every gesture its meaning—and even every pause its significance.

Those who in memory go back to the days when Turner was their teacher in Anatomy will recall the same energy of mind and lucidity of diction. At a time when our School was peculiarly rich in brilliant lecturers it is no disparagement of the great teachers who were his contemporaries to say that none was greater than Turner. He was a perfect master of exposition and demonstration, and to his students he made the dry bones live.

But we think that it was in his special course of demonstrations on Comparative Anatomy and Anthropology that Turner was at his best. How he revelled among the skulls of all races and ages, and showed the biological and evolutionary meaning of their various shapes and markings, and as he placed beside each its appropriate variety of hair, proved that no other hair was possible to such a skull. How he literally fondled that breastbone of the whale—walked round and round it admiring its handsome proportions, and then, placing his hand gently on it, said, with sincerity in his voice, "Yes, gentlemen, it's a *magnificent* bone."

It has been truly said of Sir William Turner that he provided Professors of Anatomy for most of the Universities throughout the British Empire, and we can well believe that to these special demonstrations could be traced the inspiration which directed so many of his pupils to follow in his own footsteps.

Our Alma Mater has lost a great teacher and a great Principal, but she has added yet another great name to her illustrious roll.

Central Midwives Board for Scotland.

NOTICE is given in the *London Gazette* that by virtue of steps taken by the Lord President of the Council, in pursuance of section 3 of the Midwives (Scotland) Act, 1915, the Central Midwives Board for Scotland has been provisionally constituted as follows:—

1. Lady Balfour of Burleigh; 2 and 3 not yet appointed—appointed by Lord President of the Council.

Sir Archibald Buchan Hepburn, Bart., appointed by Association of County Councils for Scotland

Sir Robert Kirk Inches, appointed by Convention of the Royal Burghs of Scotland.

Lady Susan Gordon Gilmour, appointed by Queen Victoria Jubilee Institute for Nurses, Scottish Branch.

Archibald Campbell Munro, Esq., M.B., C.M., D.Sc.(Ph.), appointed by Society of Medical Officers of Health of Scotland.

Professor Sir John Halliday Croom, M.D., F.R.C.P.(Edin.), F.R.S., appointed by University Courts of the Universities of Edinburgh and St. Andrews conjointly.

Professor Murdoch Cameron, M.D., C.M., appointed by University Courts of the Universities of Glasgow and Aberdeen conjointly.

J. H. Ferguson, Esq., M.D., F.R.C.P.(Edin.), F.R.C.S (Edin.), appointed by Royal College of Physicians of Edinburgh, Royal College of Surgeons of Edinburgh, and Royal Faculty of Physicians and Surgeons of Glasgow conjointly.

Michael Dewar, Esq., M.D., Ch.B., and John Wishart Kerr, Esq, M.D., Ch.B, appointed by Scottish Committee of British Medical Association.

CASUALTIES.

KILLED in action in France, Lieutenant GEORGE DEWAR, R.A.M.C., aged 23.

Lieutenant Dewar, after serving with the colours for a few months' training, obtained permission to return to Aberdeen University to complete his medical studies, where he passed his final examination with distinction. He was gazetted a Lieutenant in the R.A.M.C., and was almost immediately sent to the Front.

KILLED in action in France on February 7th, Captain GEORGE SEYMOUR STRITCH, 6th Service Battalion, Connaught Rangers, aged 38.

Captain Stritch was educated at Trinity College, Dublin, and in the schools of the Royal Colleges of Surgeons of Dublin and Edinburgh, and took the Scottish triple qualification in 1895. He subsequently settled in practice in Dublin.

WAR HONOURS.

THE following honours have been conferred on members of the medical services.

D.S.O.—Captain ALEXANDER FINDLATER, M.D., 1st London Mounted Brigade Field Ambulance, R.A.M.C. (T.F.), for conspicuous gallantry and devotion to duty on several occasions, notably on 29th September 1915, at Chocolate Hill, Gallipoli Peninsula. He crossed over two hundred yards of open ground under very heavy shell fire to render aid to two wounded men.

Military Cross.—Temporary Lieutenant JOHN WESLEY GILBERT, R.A.M.C. (attached 9th Brigade, R.G.A.), for conspicuous gallantry and devotion to duty near Ypres on 29th December 1915. After three attempts he succeeded in entering a farm, which was being heavily shelled with gas and other shells, and rendered valuable help to the wounded infantry billeted there.

THE SURGICAL AND ANTISEPTIC VALUES OF HYPOCHLOROUS ACID (EUSOL).

By JOHN FRASER, M.D., Ch.M., F.R.C.S.E.,
Assistant Surgeon, Edinburgh Royal Hospital for Sick Children;
Captain, R.A.M.C., British Expeditionary Force;

and

H. J. BATES, B.A., M.B., B.Ch.(Dublin),
Captain, R.A.M.C. (T.), British Expeditionary Force.

In June 1915 we first began to make use of 0·5 per cent. hypochlorous acid (eusol) as an antiseptic. Six months have now elapsed, and it may be of interest to summarise its relative values. Previous to adopting hypochlorous acid, use and experiment had been made of all the better known antiseptics, and therefore the ultimate adoption of a single antiseptic was of interest, as the comparison brought more clearly into view the relative advantages of the more newly employed method. For facility of description the use of hypochlorous acid (eusol) will be described under two headings:—

A. *General Use*—in simple general wound treatment.

B. *Special Use*—in special wounds, or in special body localities or diseases.

It is unnecessary to enter into any detail regarding the preparation of the solution of hypochlorous acid (eusol): for such details the reader is referred to the paper by Professor Lorrain Smith and others in the *British Medical Journal* of 24th July 1915.

Briefly, our method of preparation was as follows:—In a Winchester quart bottle 27 grammes of dry bleaching powder were placed, and to this 1 litre of water was added; the mixture was shaken, and 27 grammes of boric acid were added; the bottle was now filled with water, the solution was thoroughly shaken, allowed to stand for a few hours, and then filtered through cotton-wool. The clear solution is eusol; it is slightly alkaline to litmus, and it contains approximately 0·5 per cent. hypochlorous acid. The solution was stocked in air-tight stone jars.

A. *General Uses.*—In war work it may be accepted as a general principle that every wound is an infected one, and, naturally, the further principle follows that the treatment of such wounds must be adopted on antiseptic lines. In dealing with such cases two ideals are kept in view—thorough drainage of the part, and as complete disinfection of the wound as is possible. The efficient antiseptic is one which, while it exerts its antiseptic action, does not devitalise the body tissues. It seems to us that in the hypochlorous acid solution (eusol) we have as nearly as possible the ideal antiseptic.

In an ordinary gunshot or stab wound our procedure has been to open up the wound as thoroughly as possible; its interstices and crevices are thoroughly washed out with eusol, the solution being warmed to body temperature. A laterally perforated tube is passed into the wound, and around the tube, between it and the wound edges, gauze soaked in warm eusol is lightly packed, while over the wound surface similarly treated gauze is placed. The frequency of dressing depends on the condition of the wound. If there be a gross infection the dressing is repeated every four hours; in lighter infections the interval is correspondingly lengthened. It is not necessary to change the tube or even the surrounding gauze at each subsequent dressing; it is often sufficient to inject fresh eusol into the tube, from which it is dispersed through the lateral openings into the surrounding gauze. We have found it essential, however, to change the tube at least once in twenty-four hours, and the gauze at least twice. It has been our experience that under this treatment infection rapidly disappears from the wound. It is a striking fact that suppuration does not occur, or if it has been present in the wound, it disappears very rapidly after application of the solution. A suggestion has been made to us that this is a disadvantage, as the excretion of deleterious matter is prevented; we have not observed any such disadvantage, and probably disinfection and elimination of toxin are so thorough that any such excretion is unnecessary. Healthy granulation tissue begins to appear within fifty-six hours, and having appeared it grows with remarkable rapidity. When the stage of granulation-tissue formation has been reached we have found it advantageous to alternate the eusol dressing for periods of twenty-four hours with dressings of hypertonic saline solution.

At this point it is important to discuss the disadvantages or objections which may be raised to this method of treatment. Four of these have at one time or another presented themselves, but on investigation they have all proved negligible. They are—

1. Pain in the wound. When the stage of granulation-tissue formation has been reached a stinging burning pain is complained of after the application of the eusol, which lasts for a period of

about thirty minutes. We have never noted that the pain possessed any real degree of severity, and probably it is less than that produced by almost any other variety of antiseptic.

2. Irritation of the surrounding skin. In only a single instance out of an experience of several hundreds of cases have we seen this occur. We believe that reasonably frequent changing of the dressing entirely prevents its occurrence.

3. Arrest of the wound secretion. Undoubtedly throughout the first three days of the application of the antiseptic the wound under treatment is drier than one would expect in such a wound, and, as we have mentioned, this fact has been quoted to us as a disadvantage. We have never found any disadvantage arising from this.

4. The surrounding skin becomes dirty. Eusol mixed with blood pigment forms a greenish compound on the skin, which is dirty in appearance and somewhat difficult to remove, but the compound is assuredly an antiseptic one, and after some days it can be washed away.

No other objections have been quoted to or observed by us.

B. *Special Uses.—Gas Gangrene.*—One of the most dreaded complications which arise in modern warfare is the infection of a wound with a gas-producing organism. Wounds inflicted in warfare under modern conditions, especially as regards locality, would appear to be particularly liable to such infection. In these cases eusol has proved of inestimable benefit. A summary of experiences in this connection was published in the *British Medical Journal* of 9th October 1915. The infected wound is treated on the scheme which we outlined in describing the general treatment of wounds, and special attention is paid to frequent changing of the dressing. The usual experience is that the infection is early and completely arrested. Occasionally cases of this description come under our care so late that local measures are insufficient, and amputation is the only possible procedure. In order to procure the best stump it is frequently necessary to cut the flaps so that they pass through what appears to be infected tissue. We have frequently done this with impunity since we adopted the use of hypochlorous acid. It is sufficient to open up the gas-infected area and wash it out thoroughly with the antiseptic.

A series of water-colour drawings are added which illustrate different stages in the treatment of a typical case of gas gangrene with eusol (Figs. 1-4).

Compound Fractures.—The persistence of infection in cases of

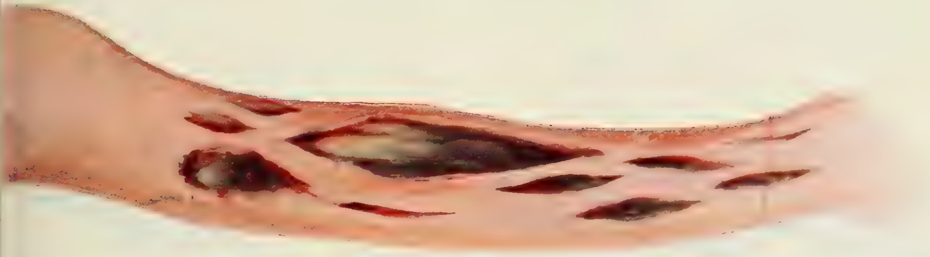


Fig. 1.—Acute Gas Gangrene of the Leg. Incisions have been made and the underlying necrotic tissue is exposed.

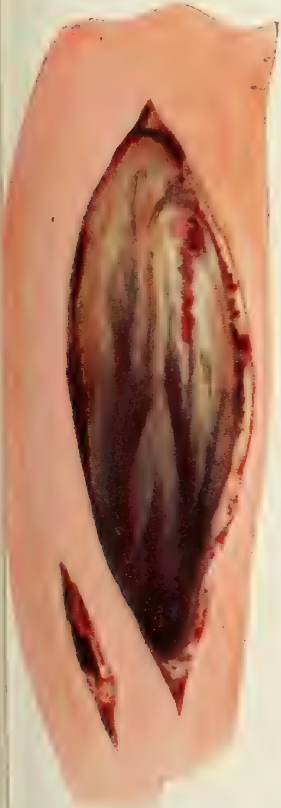


Fig. 2.—Acute Gas Gangrene of the Leg. This sketch was made on admission of the patient.

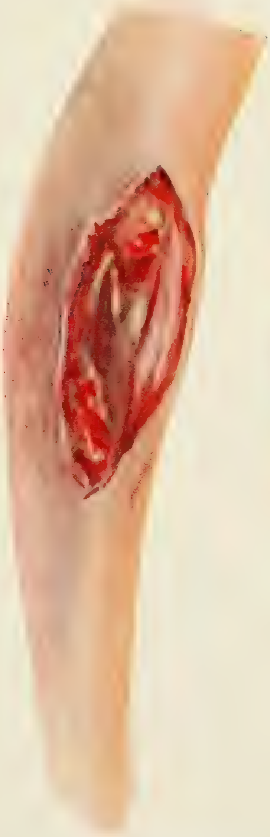


Fig. 3.—Wound Infected with Gas Gangrene after Five Days Treatment with Eusol. A shrivelled slough is separating from the centre of the wound.

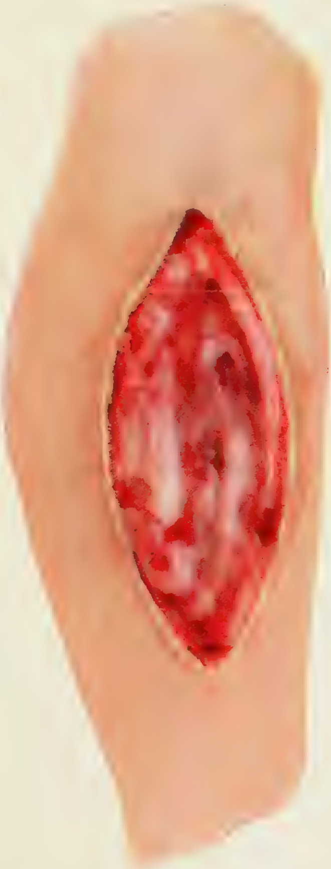


Fig. 4.—Wound Infected with Gas Gangrene after Ten Days Treatment with Eusol.

compound fracture is notorious, and we have noted great improvement in the treatment of such cases; the infection early disappears, and further measures of treatment can be more readily undertaken. Further, the absence of suppuration and the arrest of infection have greatly reduced the necrosis and subsequent sequestrum formation which is so troublesome.

Joints.—In severe cases, where the joint is disintegrated, we have had the same experience as in cases of compound fracture. Special mention must be made of small penetrating wounds of joints causing a hæmarthrosis; these are almost invariably infected. Bits of clothing have been recovered from the joint cavity, and the general and local conditions may point to the presence of pus. It is our practice at once to open and drain the joint, and irrigate with warm eusol. The inflammation has quickly subsided, and the joint has shown no signs of the formation of adhesions. In cases where the cartilage has been visible no granulations or appearances of destruction have been seen on its surface.

Cranial Surgery.—A large proportion of the cases with which we have to deal are compound fractures of the skull, associated usually with extensive injury to the underlying brain. Almost without exception the cases are infected, and we believe that the main degree of the mortality in the more recent type of case is due to a progressive septic change in the brain.

While the operation is proceeding we have found benefit by having a continuous irrigation of the tissues with eusol; the warm fluid is suspended in a vessel above the patient and continuous irrigation is thus ensured. In all subsequent draining and dressing the same antiseptic is employed. By these means we believe we have reduced the degree of septicity in such cases.

Chest Surgery—Empyema.—We find that we can, with perfect safety, irrigate the pleural cavity with a warm solution of eusol. The cases in which we have used the method have been those of infected bullet or shell wounds with subsequent empyemata. No doubt the cavity was localised where the irrigation was employed.

Subsequent to the use of the antiseptic the discharge invariably diminishes, and disappears more quickly than we had previously experienced. It seems to us that in these cases its use is ideal, and we have had no experience of the complications which are usually so dreaded from adopting such a procedure.

Abdominal Surgery.—We have had experience of this antiseptic in three different types of cases under this heading—in appendix abscesses, in general peritonitis, and in cases of bullet wounds of intestine or other viscera. Before using the antiseptic in the peritoneal cavity we carried out some experiments on rabbits, in which we opened the abdominal cavity and thoroughly washed its surface with eusol, leaving a certain amount *in situ* before closing the wound. Subsequent examination showed no deleterious effect, not even in the shape of an adhesion.

In the treatment of appendix abscesses we have had satisfactory results: the discharge was arrested and healing proportionately hastened.

In regard to general peritonitis we speak with great diffidence, as our experience with the antiseptic in such cases has been limited to a single example. Briefly, the facts are as follows:—A man was admitted to hospital who, four days previously, had had an onset of acute appendicitis. When admitted he was found to be suffering from acute general peritonitis; the appendix was ruptured and extensively gangrenous, the abdominal cavity was actually as full of pus as it could be, and there was a large subphrenic collection on the right side. Drainage was established in the pouch of Douglas, in both iliac fossæ, in the right kidney pouch, and in the right subphrenic region. Twelve hours later irrigation with eusol was carried out through the various drainage tubes. At the next dressing it was noted that the discharge had entirely altered; it was now almost clear, and, up to the period of writing, *i.e.* four days after operation, the discharge has practically ceased, while the patient is making a satisfactory recovery. But as we have said, we quote the result with great diffidence, as our experience in this relationship is limited, and the result we have quoted may be merely a coincidence. Cases of perforating wounds of the abdomen which have been operated on and which require subsequent drainage of the peritoneal cavity we invariably irrigate through the tubes, with very beneficial results.

Urethritis.—Cases of chronic urethritis appeared to be very suitable for treatment with eusol, and consequently irrigation was carried out with eusol of known strengths (titration being done)—0·17, 0·25, 0·5 per cent. hypochlorous acid. In some cases pain was experienced with the strong solution, in the others it was comfortably borne in full strength and proved to be very efficient. The discharge became rapidly less.

In cases of acute urethritis we had not so much success. There was considerable pain and smarting, and the solution appeared to be too irritant for the highly inflamed mucous membrane of the urethra.

Finally, we wish to mention a special use of eusol to which reference has been made in a paper by Professors Lorrain Smith and Ritchie and Dr. Rettie (*Brit. Med. Journ.*, 13th November 1915), namely, its value as an intravenous injection in the antagonism of toxæmias.

We have experienced a number of cases of acute toxæmia subsequent to infection of a wound with a gas-producing organism. Hitherto such toxæmias have been fatal in a considerable proportion of cases. In such cases we now employ intravenous injection of eusol, varying in amount from 40 to 70 c.c. To the eusol common salt is added in the proportion of 8·5 grammes of salt to the litre of eusol. With this method of treatment we have had most gratifying results. These form the subject of a communication at present in process of publication.*

We wish to express our indebtedness to Lieut.-Colonel Wear, R.A.M.C. (T.), for permission to make use of various cases. The water-colour drawings are the work of Private Warr, R.A.M.C. (T.), whom we take this opportunity of thanking.

* *Brit. Med. Journ.*, 15th January 1916.

EDINBURGH WAR HOSPITAL, BANGOUR.

. . . .

"Yet when thy country's wrong to action moved,
You rose to save, and left that ease you loved ;

. . . .

Hail, and farewell ! may heaven defend thee safe,
And to thy natal shore and longing friends
Restore you, when thy destined toils are o'er."

(*Hamilton of Bangour's Poems*, 1748.)

THERE must be few institutions in the country which so admirably lend themselves to the purposes of a great war hospital as Bangour village, which in times of peace serves as the asylum for the rate-supported insane of the city of Edinburgh. Built in 1904 by the Edinburgh District Board of Lunacy—now the Edinburgh District Board of Control—it was formally opened in 1906 by the Right Honourable the Earl of Rosebery. It was constructed on the "village" system from plans by Hippolyte J. Blanc, R.S.A., with whom was associated as medical consultant the late Sir John Sibbald, Retired Commissioner of the General Board of Lunacy for Scotland, and it embodies all the most advanced views on the arrangement and construction of a modern asylum. "No boundary walls enclose any of the houses, nor are there any fenced areas . . . all roads and walks being open as in an ordinary village . . . and the appearance is that of an ordinary city suburb."

The hospital is situated in the county of Linlithgow, 14 miles from Edinburgh, 2 miles west of the village of Uphall, and 4 miles east of the town of Bathgate, on the estate of Bangour, 960 acres in extent, including about 200 acres of woodlands, and stands from 500 to 700 feet above sea-level on sloping ground with a southern exposure.

It is served by a private railway 2½ miles in length, a branch of the Edinburgh and Glasgow main line *via* Bathgate. The Bangour railway leaves the main line one mile west of Uphall station. It passes through the small hamlet of Dechmont, which, belonging almost wholly to the District Board of Control, is being laid out on the garden-city principle, and is inhabited by its employees. There is a station at Dechmont, and the line terminates at the station of Bangour, which is within the grounds of the hospital and close to the power-station and workshops.

For the purposes of a war hospital the station has proved of the greatest value. The hospital trains conveying the wounded are drawn up at the platform, and the station is so arranged that the ambulance cars can be run up alongside the train, entering at one end of the station and leaving at the opposite end, so that there is no cross traffic to delay the transfer of patients from the train to the wards. At the station the patients are easily sorted out by the medical officers into medical and surgical groups, and the staff of the Red Cross Society convey them direct to the wards in which they are to be treated, in this way avoiding the unnecessary transferences which result from sorting out in the hospital. It has been found possible to evacuate a hospital train of 100 patients and to have them comfortably in bed within a space of forty-five minutes.

ACCOMMODATION.

The hospital provides accommodation for 1350 patients, divided provisionally into 830 surgical and 520 medical beds, and these are situated in 14 separate buildings to be described later. By converting the day-rooms and dining-rooms of the asylum into wards, 400 beds have been provided beyond the number accommodated in the asylum.

ADMINISTRATIVE STAFF.

The hospital is under the charge of the Officer Commanding, Lieut.-Col. John Keay, R.A.M.C. (the Medical Superintendent of Bangour Village Asylum). Captain A. C. M'Master, R.A.M.C., acts as senior resident surgeon, and Lieutenant H. C. Gibson, R.A.M.C., as senior resident physician, and there is a staff of six resident surgeons, six resident physicians, and a resident dental surgeon; these are either members of the R.A.M.C. or civilian surgeons. The pathologist is Dr. Laura K. Davies. The X-ray department is under the charge of Mr. Thomas Rankine, with assistants.

The *Nursing Staff*, under the charge of Miss Isobel Davidson, matron, includes 50 sisters, 150 nurses and probationers, 50 V.A.D. nurses, and a staff of certificated masseuses.

The *Orderlies* were asylum attendants. They have quickly adapted themselves to altered conditions, have qualified in ambulance work, and are now quite as efficient as R.A.M.C. orderlies.

The Guard.—This consists of a sergeant and 12 men of the

9th Provisional Battalion Highland Light Infantry, and is sufficient to provide a sentry for each of the three entrances to the grounds of the hospital during the day. During the night the entrances are not guarded in any way. For the accommodation of the guard a wooden hut containing living-room, sleeping quarters, bath-room and sanitary annexe has been erected near the principal entrance.

ADMINISTRATIVE DEPARTMENTS.

Before describing the more purely medical section of the hospital it may be of interest to refer briefly to the various administrative departments by which they are served.

Power-Station and Workshops.—These are grouped in one large block which adjoins the railway siding, from which coal is delivered direct from the trucks through shoots into a large coal store of 200 tons capacity. Behind the boiler-house are the dynamo-hall, the accumulator-room, and the engineer fitter's shop; and close by are workshops for the painter, smith, plumber, cabinetmaker, carpenter, tailor, shoemaker, etc., and various stores. This block also includes a large chamber for disinfecting clothing by steam.

At the power-station steam is produced which is used in the laundry, kitchen, and bakery, and electricity is generated for light and power wherever required all over the hospital.

The tailor's department includes a capacious store fitted with iron racks for the storage of patients' service clothing while in hospital, a workshop for the repairing and pressing of the garments when they have been returned from the cleaners, and a large steam disinfector through which as a precautionary measure the clothes are passed before being dealt with.

Central Kitchen.—The kitchen and store are together in one block. At one end of the store is a specially constructed cold store, with motor and brine pump-chamber, for the preservation of food in hot weather.

The food is sent out in jacketed tins and conveyed in a specially-constructed motor waggon, and the supply for the whole hospital can be distributed in about twenty minutes without sensible diminution of heat.

In addition to the ordinary plant of a large institution kitchen, consisting of steam-jacketed boilers, steam presses, cooking ranges, etc., with which this department was originally equipped, there are installed a brass jam boiler, capable of boiling 1 cwt. of jam at one filling, an electrically-driven mincer, and a potato peeler, also driven by electricity.

Ward Kitchens.—Each ward is provided with a kitchen and scullery of suitable size, fitted with all necessary appliances for sickroom cookery, and presided over by a V.A.D. cook.

Farm.—The hospital farm, extending to over 700 acres, excluding land occupied by buildings, woods, and water, has been hitherto a successful undertaking. Roughly, 400 acres are under crop and 300 acres old pasture. There are two steadings, one of them being the original steading of the farm, and the second a group of buildings recently erected with the most up-to-date arrangements. The farm stock includes about 140 head of cattle—dairy shorthorns; 30 horses—Clydesdales; 300 sheep; 150 large Yorkshire pigs, and about 300 poultry of various breeds. The farm supplies the hospital with the usual farm produce—milk, eggs, a certain amount of beef, mutton, pork, poultry, and potatoes, turnips, carrots, etc. From the gardens are obtained green vegetables in abundance, and, in the season, small fruits. About 4½ tons of home-made jam are consumed in the year in normal times.

Water-Supply.—The waterworks, which cost £25,000, are situated on the estate to the north-west of the hospital buildings, at an elevation of 700 feet, which gives a 200-feet head of water for fire-extinguishing purposes. The reservoir has a capacity of 16,000,000 gallons, or about five months' supply for a population of 1500 using 70 gallons per head per day. The water passes through sand filters on its way to the hospital.

With an eye to maintaining the purity of the water the reservoir is well stocked with trout.

Drainage.—The sewage of the hospital is carried by gravitation to the south-east corner of the grounds, where it passes into the public drainage system of the district. To the east of the town of Broxburn it reaches the purification works, where it is treated on the bacterial system. The effluent is discharged into the river Almond, which runs into the Forth at Cramond village.

THE SURGICAL HOSPITAL.

Staff.—The visiting surgeons—Lieut.-Col. C. W. Cathcart, Major David Wallace, C.M.G., Captains Alexander Miles, H. J. Stiles, J. W. Dowden, and A. A. Scot-Skirving, C.M.G.—are members of the staff of the 2nd Scottish General Hospital, seconded for duty at the Edinburgh War Hospital, Bangour. The resident staff includes the senior resident surgeon and six resident surgeons.

The principal building, which in peace time serves as the hospital block of the asylum, occupies a commanding site in the eastern section of the ground and faces due south. It is a building of two floors arranged in two wings, and contains 250 beds—100 more than in normal times. Each wing contains four wards (Nos. 4A, 4B, 4C, 4D, and 5A, 5B, 5C, and 5D). No fewer than 88 of the 250 beds in this block are verandah or balcony beds. Two of the wards are verandah wards, each of 30 beds. These verandah wards were added to the block quite recently at a cost of £1000, which seems an economical allowance for 60 beds. They have bathrooms and lavatories, also rolling shutters to exclude wind and rain, and are furnished like ordinary wards. In this block there is a fully-equipped operating theatre, as well as a pathological laboratory and the X-ray department.

Wards 7, 8, 9, *and* 10.—These four surgical wards, lying adjacent to the administrative building, and Wards 1 and 2, are in the form of villa residences. When occupied by mental patients the ground floor was used as day-room and dining-room accommodation, and the upper floor as dormitories. By placing beds on both floors the capacity for patients has been doubled. Wards 7 and 9 have each 90 beds; Wards 8 and 10 have 60. Each of these wards has its verandah on the sunny side. Each has its kitchen, from which the meals are served, and in which special diets may be prepared. Each has its own arrangement, by means of boilers in a furnace chamber, entered from outside the building, for the heating of its rooms and for its hot-water supply.

Operating Theatres.—Three operating theatres are available for the use of the surgeons and specialists. That in the hospital block of the asylum provides for the two charges housed there.

For the other surgical wards a building of a temporary nature has been erected on the north-west side of the administrative block. In this there are two operation rooms, each 21 ft. × 20 ft., with rooms for sterilisers and for instruments, also anæsthetising and recovery rooms. The architects for this building were Messrs. J. Jerdan & Son, Edinburgh, and in the preparation of the plans most valuable assistance and advice were given by Colonel Mackintosh, M.V.O., R.A.M.C., of the Western Infirmary, Glasgow. One of the theatres is magnificently lighted by means of a powerful electric incandescent lamp placed at the apex of a parabolic reflector which has been generously lent to the hospital by the Northern Lighthouse Board. The equipment of these theatres is of the most complete and up-to-date description.

THE MEDICAL HOSPITAL.

The visiting physicians are also members of the staff of the 2nd Scottish General Hospital, seconded for duty at the Edinburgh War Hospital, Bangour. They are Lieut.-Col. Sir Robert Philip, Major F. D. Boyd, C.M.G., Captains Edwin Matthew, J. G. Cattanach, John Eason, and J. W. Simpson, with a staff of six residents under the senior resident physician.

The 520 beds for medical cases are contained in six separate buildings, which, when occupied by mental patients, were called industrial homes. The patients who lived in these buildings when the place was a mental hospital were principally of the chronic or convalescent class who were capable of being usefully employed. The buildings are of the nature of villas, and are placed in what was the industrial section of the institution.

Four of them, constituting Wards 24, 25, 27, and 28, are in the north-western area of the hospital grounds and are constructed of wood and iron, the walls and partitions consisting of a skeleton framework of wood filled in with slabs of an incombustible material called "fram" boarding and plastered in the usual way. The outside walls and roof have a protecting layer of felt, outside of which are sheets of corrugated iron.

These villa wards are of two storeys. In normal times with mental patients they accommodate 50 beds, the ground floor being used by the patients during the day and the sleeping apartments being upstairs. Now there are 90 beds in each of these wards, six of these beds being on the commodious verandah, fitted with a balustrade and protecting sailcloth screens, which is on the south side of each of the buildings.

The other two medical wards, Nos. 20 and 21, are substantial stone buildings of the villa type situated in the south-western portion of the grounds. In pre-war days each of these accommodated 50 female patients of the industrial class. By filling up their day-rooms and dining-rooms with beds, room is found in each for 80 soldier patients.

Like the similar villas which have been converted into surgical wards, each of these buildings has its own heating apparatus and hot-water supply, and each is provided with a fully equipped little kitchen, presided over by a V.A.D. cook, from which the meals are dispensed, and in which dainty little extras can be prepared for invalid appetites.

SPECIAL DEPARTMENTS.

The visiting staff of the hospital is augmented by the following consulting specialists :—*Ophthalmic Surgeons*—Dr. George Mackay and Dr. W. G. Sym; *Aural Surgeons*—Dr. Malcolm Farquharson and Dr. J. S. Fraser; *Physician for Tropical Diseases*—Major D. G. Marshall, I.M.S.; *Dermatologist*—Dr. Frederick Gardiner; and *Dental Surgeon*—Dr. J. H. Gibbs.

For the accommodation of these special departments a temporary building has been erected on the north-east side of the administrative block, close to the operating theatres.

ACCOMMODATION FOR SICK AND WOUNDED OFFICERS.

This is provided in the building known as the sanatorium, a one-storey block on the "Butterfly" plan, situated on the higher part of the grounds to the north-west of the surgical section. It consists of two wards, each containing eight beds, and four separate rooms. The sanatorium, like all other wards, is under the charge of an experienced sister, who has as many nurses as are from time to time required to assist her. The separate kitchen, with which, like other wards, it is provided, is presided over by a V.A.D. cook.

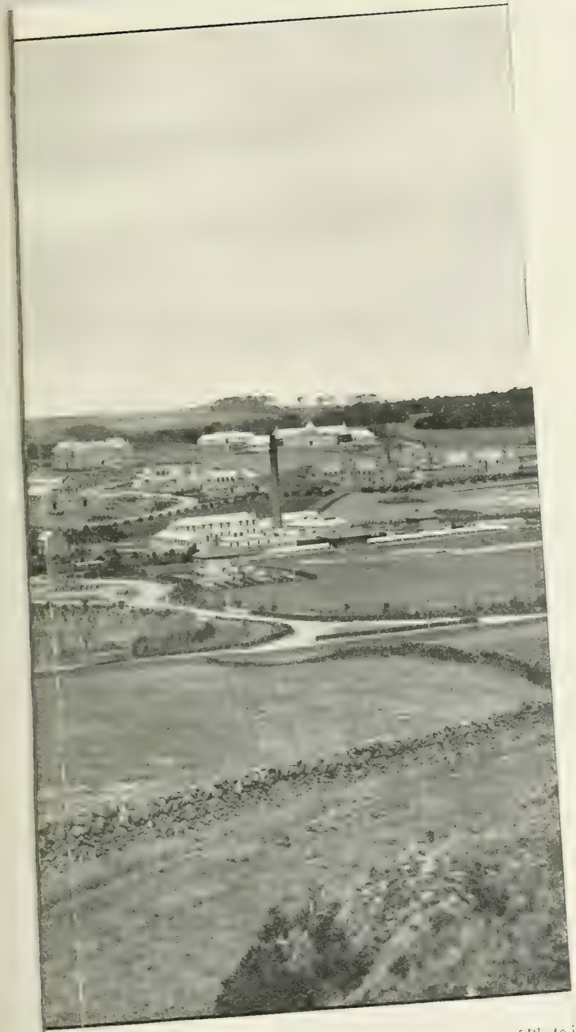
X-RAY DEPARTMENT.

This department is under the charge of Mr. Thomas Rankine, who has not only provided the whole apparatus but has generously placed his services at the entire disposal of the staff.

Three rooms are allotted to the X-ray department: one large room where the photographs are taken, a smaller room with a large viewing desk and the necessary accommodation for preserving negatives and records, and a dark-room.

The large room, 30 feet long and 18 feet wide, accommodates the whole X-ray apparatus, which includes the radiographic machine, two full-length X-ray tables, tube stands, screening stand, the collection of X-ray tubes, the battery and rheostat for Coolidge tubes, and the usual minor equipment.

The radiographic machine, which is of American manufacture, comprises a 10 H.P. motor and dynamo capable of delivering



[*Photo*

[illegible]

Surgical Wards in Hospital Base.

[illegible]

One of the Smaller Villas used as Surgical Wards.

[illegible]

The Recreation Hall.

“The Shop.”

15 KVA energy at the tube, a closed core transformer with five steps of transformation from 25,000 to 100,000 volts, and a special arrangement for fluoroscopy, a trolley switchboard, and an automatic time switch. This machine was selected after trial of seven other patterns, as the most powerful and efficient apparatus obtainable. It delivers with ease 100 to 150 milliampères at the tube, and enables exposures to be made in a fraction of a second if required. A portable X-ray apparatus is available for cases which require investigation, and which cannot be sent from the ward to the X-ray department.

The routine work is almost entirely performed with a milliampèrage of 50 to 100, which allows photographs of almost any part of the body to be obtained in one or two seconds, and almost entirely obviates the necessity for intensifying screens, with which, however, the hospital is adequately provided.

An automatic timing device of special design ensures exactness of exposures of all intervals between one-sixtieth second and ten seconds.

The screening stand is only employed in cardiac and intestinal cases, when it is desirable to observe movement. Radiography of the eye and orbit is performed by the Dixon localising apparatus, which is a complete unit for this special work.

Of the two large X-ray tables, one is fitted with an adjustable tube box beneath, and is arranged for screening over the table if required; it is also furnished with means for making rapid stereoscopic pictures with the patient above the lamp.

The work of this department is performed mainly with the lamp above the table—a tube-stand of heavy construction with removable compression diaphragms, and stereoscopic movements and verniers, in addition to all usual adjustments, is employed.

The X-ray tubes in use are almost all of American manufacture, and include Macalister Wiggin, Bauer, and Coolidge tubes. These latter are sufficiently novel to merit some slight description.

The Coolidge tube marks the latest advance in tube design, and appears to overcome all the old difficulties of stability of tube and penetration. The degree of exhaustion of these tubes is so high that no discharge will pass through the tube even at 100,000 volts pressure, unless under certain conditions which are entirely within control. To render the tube conductive, it is necessary to make incandescent a small tungsten filament, which forms the cathode; the electrons then thrown off from the incandescent filament form the vehicle which carries the high-tension current across the lamp.

The carrying capacity of the electron stream varies with the heat of the tungsten filament; the heat of the filament is directly controlled by a battery, rheostat and ammeter in local circuit, hence it becomes possible to produce an electron stream or vehicle of any desired capacity for the passage of high-tension current.

It is obvious, as the output of the transformer and the carrying capacity of the vehicle are both within control, that any desired combination of penetration and quantity of X-ray to the full capacity of the generator can be employed at will. In this new tube, therefore, the penetration and quantity of X-rays is definitely controlled along a wide scale of light variation, whereas the old type of tube has practically only one note. The tube has no secondary radiation from the glass, hence photographs with perfect definition to the edge of the plate are obtained without the use of a diaphragm with its attendant disadvantages. Milliampèrages of 100 to 150 have no bad effect upon the tube, the life of which, unlike the older forms of X-ray tube, appears to be indefinite.

The routine of the department is as follows:—Cards are supplied by the department and upon these the physician or surgeon fills in the name of patient, nature of wound, etc., and these cards are sent to the X-ray room. These case cards are then consecutively numbered, classified, and the most urgent cases dealt with first.

Each patient on entering the X-ray room is given a label bearing a number corresponding to that upon the case card, and this label is affixed to his bed on his return to the ward. The same number is photographed on the plate or plates of the subject. Dressings are if possible entirely removed.

In cases where no foreign body is thought to be present, antero-posterior and, if possible, lateral photographs are taken. If the presence of a foreign body is suspected, one A.P. exposure is made to ascertain the general condition and to find the foreign body.

These plates are then developed, the patient meanwhile remaining on the X-ray table; while the development is in progress the same routine has been gone through with the next patient on the second table. The developed plates of the first case are then examined, and if they furnish all the possible information, the patient is then returned to his ward. If, however, foreign bodies appear upon the radiogram, it is necessary to take a stereoscopic pair of photographs to determine with accuracy their position and depth. For the exact determination of these, neither costly nor elaborate apparatus is required; a plate tunnel made of wood and just large enough to permit the easy insertion and withdrawal of a photographic plate of requisite size, and fitted with two lead or iron wires at right angles sunk into the under side of the roof of the tunnel is employed. This tunnel is placed under the patient in such a position that the point of intersection of the cross wires (which is indicated upon the upper surface of the tunnel) is approximately under the already ascertained place of the foreign body, and a mark is made upon the patient's skin to correspond to the intersection point of the lines in the tunnel. The centre of the lamp is now adjusted as nearly as possible centrally over the tunnel, and a stereoscopic pair of photographs are then made by moving the lamp 3 or 5 cms. on each side of its central position. The distance of the anticathode from the plate is noted—this distance may conveniently be 50, 60, or 70 cms. After development of the plates, the wires in the tunnel will have recorded themselves along with the foreign body upon the plates, and the shadows of the foreign body will be found at different distances from the line. This apparent displacement or parallax of shadows is measured by compass or scissor points, which are then applied to a chart of graphs, and the depth at which the foreign body lies in the tissue is instantly and accurately determined, either in relation to the skin or to any bony point which appears on the skiagram. With the mark upon the patient's skin as centre, a cross is drawn upon the patient's skin to correspond with the lines on the plate. From these lines the position of a foreign body is measured and marked upon the skin, and a note of its depth recorded upon the folder which will contain the negative when completed. This case is now finished, and by this time the first plate of the second patient is ready and the same process is repeated.

The accuracy of this method of localisation is infallible; the cost of a set of tunnels for the three usual size of plates is the whole outlay, which need not be more than a few shillings. (The technique and chart of graphs may be obtained from the radiographic department of the hospital upon request.)

This method of localisation has the further advantage that all plates so taken may be viewed by means of the stereoscope, either by the Wheatstone apparatus or the simpler and equally effective

Pirrie stereoscope (the latter is in constant use in the X-ray department), and in fracture cases is specially useful for indicating the actual position of the fragments. Illumination of negatives for stereoscopic or other examination is provided by an electrically illuminated viewing desk capable of showing twelve large negatives simultaneously. Apparatus is also available for reducing negatives to lantern slide size, and for producing the prints which are made of cases of more than usual interest.

To facilitate reference, all plates are stored in coloured folders and indexed on the coloured card index system. To the group of wards under each surgeon a distinctive colour is assigned, and all cases from each group are stored in the folders and indexed on cards of the colour appropriate to the group. Folders of each colour are stored separately and consecutively, hence each surgeon's cases form a complete section. Plates required for the wards are asked for and identified by the number on the label hanging on each bed.

PATHOLOGICAL DEPARTMENT.

This department is under the charge of Dr. Laura K. Davies, with assistants.

The laboratory is situated in the hospital block and consists of one large room with the necessary sinks, shelving, etc., and two small stores adjoining. It is fully equipped with incubators, hot-air chamber, inspissator, centrifuges, etc.

The work is carried out as a matter of daily routine, to meet both surgical and medical requirements, in the following directions:—

1. Bacteriological investigation of infected wounds. In co-operation with Professor Lorrain Smith of the University of Edinburgh, Dr. Davies has carried out a series of observations on the bacteriology of wounds under treatment with "eusol."
2. The preparation of vaccines (staphylococcal, micrococcus catarrhalis, pneumococcal, bacillus coli).
3. Agglutination reactions with B. typhosus, B. paratyphosus "A," B. paratyphosus "B."
4. Cultural examinations in cases of dysentery.
5. Examination of blood; blood counts and films.
6. General reports on throat swabs, sputa, and urines.
7. Wassermann reaction.
8. Examination of pathological tissues; pathological histology.
9. Pathological inoculation of animals.

ACCOMMODATION FOR RESIDENT STAFF.

The residence of the *Officer Commanding* occupies the site of the old Bangour House, where lived William Hamilton of Bangour, one of Scotland's minor poets, a descendant of the ancient and honourable family of the Hamiltons of Bruntwood. His ancestor, John Hamilton, was a member of the Committee of War for the county of Linlithgow in 1648. Hamilton, who is supposed to have studied at the University of Edinburgh, was an early worshipper of the Muse, and at the age of 20 was a contributor to the first and second parts of Allan Ramsay's *Tea Table Miscellany*, published in 1724, in which appeared "The Braes of Yarrow" and several other of his most admired lyrical productions. In 1743 the country became much disturbed by the designs of the Jacobites, to whose cause both by family connections and by the bias of his own feelings he was warmly attached, and although he probably took no active part in the rising, he was constrained after the decisive defeat of the Prince at Culloden to seek safety in flight and escaped to France. In 1749 he made his peace with the Government and returned to Scotland. He died in 1754 at the age of 50.

The original house has long since disappeared, its place being taken by an elegant example of modern domestic architecture standing in the midst of a skilfully designed rock garden.

For the use of the *Resident Surgeons* and *Physicians* the mansion-house of Houston has been temporarily acquired.

Houston House, the family residence of the Shairps, dating from the latter part of the 16th century, is of considerable historical and architectural interest. It is an exceptionally lofty house with crow-stepped gables, and judging from the plan, it is probable that its older part, at the south-east angle, was originally a keep and that all the other buildings have been added so that the keep has been gradually transformed into the characteristic specimen of an old Scottish mansion that we now see. Supporting this idea is the fact that there is still on the first and second floors the remains of a wheel stair in the thickness of the wall, such as is frequently found in simple oblong keeps. For such a stair there does not seem to have been any use if the large scale and platt stair had been contemporaneous with its erection.

Surrounding the house are well laid out grounds with magnificent trees, and to the south a picturesque old garden with remarkably fine hedges. An interesting and well-preserved old sun-dial and pillar stand on a flat circular stone base in the grounds adjoining the house.

The estate of Houston, formerly called Hostaine or Houstaine, has been in the possession of the family of Shairp for about 400 years. Their ancestor, William E'Sharp, is said to have come from Normandy with David II. The first of the family of whom history makes particular mention is Sir John Shairp or Scharp, Knight, an eminent lawyer, advocate for Queen Mary, who acquired most of the property in Linlithgowshire and in whose time it is said the oldest part of Houston House was built. Since his time many of his descendants have distinguished themselves in battle, and the graves of some are on famous fields. At the funeral of Archbishop Sharp, the then proprietor of Houston bore a "mourning standard," but it is uncertain whether a relationship existed between them.

During the civil wars in the time of Charles I. the Shairps took the Royal side. In the last Scottish Parliament Thomas Shairp and his brother-in-law, Murray of Livingstone, represented the county of Linlithgow, when the former rendered himself conspicuous by his opposition to the Treaty of Union with England.

In more recent times a distinguished member of the family of Shairp was the well-known Principal of the University of St. Andrews.

The walls of the mansion-house are adorned by protraits by eminent artists of members of this old Scottish family.

The Nurses' Home.—In normal times the Nurses' Home accommodates about 80 nurses, with the matron, assistant matrons and domestic staff, each nurse having her own bedroom, the recreation room, writing room, library and parlours being shared in common. For the necessities of war time the accommodation has been expanded so that 130 nurses are now housed in the home. The problem of how to provide house room for the large addition to the nursing staff required by the War Hospital was solved by the fortunate circumstance that in the adjoining village of Dechmont there were ten cottages in course of erection by the District Board of Control for certain of their employees. The employees went off to the war and the new cottages were available. They were suitably furnished, a matron was placed in charge, and now they are occupied by about 70 nurses. These cottage homes, being perfectly quiet and entirely away from the stir and noise inseparable from the staff quarters of a large hospital, are found specially suitable for nurses who are on night duty.

RELIGIOUS MINISTRATIONS.

There are three chaplains: *Church of England*—Major Rev. Fred. H. Powell, C.F.; *Presbyterian*—Rev. A. P. S. Tulloch, M.A., B.D., minister of the parish of Ecclesmachan, in which the hospital is situated; *Roman Catholic*—Very Rev. Canon Hoban, parish priest of Broxburn. On Sunday *Services* are held as follows:—At 7 A.M. Holy Communion—Church of England; at 9 A.M. Mass—Roman Catholic; at 11 A.M. Parade Service—Church of England; at 6.30 P.M. Evening Service—Presbyterian. On Wednesday evenings there is a short Anglican service at 6.30.

RECREATION HALL.

The Recreation Hall, which is situated in the middle of the grounds, provides a large hall, 93 feet by 54 feet, with cloak-rooms at the entrance. At the opposite end is a fully-equipped stage, complete with retiring and dressing-rooms. Provision is made for the orchestra in a roomy sunk pit in front of the footlights. Emergency doors are provided at the four corners of the building. By the use of lattice steel girders to support the roof, pillars are dispensed with. The hall will accommodate 700 persons.

The arrangements for providing concerts and theatrical performances for the benefit of convalescent soldiers are in the able hands of the Rev. Major Fred. H. Powell and Mr. Thomas Rankine. With the willing assistance of many artistes, professional and amateur, three entertainments are provided each week, and these are highly appreciated by the men.

For the amusement of patients who are confined to bed simpler concerts are given from time to time in the wards.

Library.—An important adjunct to the hospital is the library. This has been organised by a committee of ladies, who are assisted by lady visitors. They meet weekly and distribute books, games, and writing materials to the wards. The library is supported by voluntary contributions and contains upwards of 2000 books, irrespective of magazines and illustrated papers. It also undertakes the delivery of daily newspapers supplied by the Red Cross Society. There is also a variety of musical instruments which are lent to patients who can play them. The Stamp Fund is another department, and provides postage stamps for patients in need of them. About £100 has been collected since the opening of the hospital.

"THE SHOP."

Among the convalescent patients and their afternoon visitors, no institution in the hospital is more popular than "The Shop," a kiosk with large verandahs, situated in the centre of the grounds. Here afternoon tea, aerated waters, sweetmeats, fruit, etc., can be obtained, as well as picture post-cards, illustrated papers, and many other things dear to the heart and within the financial reach of the convalescent soldier.

The work of converting the asylum into a war hospital was greatly facilitated by the hearty co-operation afforded by the General Board of Control for Scotland and the Edinburgh District Board of Control. To the Scottish Branch of the Red Cross Society also the hospital is greatly indebted for assistance in the transport of the wounded, and for the conveyance of the visiting staff to and from the hospital. The efforts of Mr. Thomas Rankine and his collaborators in providing entertainments have been highly appreciated alike by the patients and the staff. Thanks are also due to the numerous kind friends who have so liberally sent comforts and luxuries in many forms for the sick and wounded.

J. K.
A. M.

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THE EMPLOYMENT OF FEMALE NURSES IN THE MALE WARDS OF MENTAL HOSPITALS IN SCOTLAND.*

By GEORGE M. ROBERTSON, M.D., F.R.C.P.,
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TEN years ago I was requested by the secretary of the Medico-Psychological Association to open a discussion at the annual meeting of the Association on this subject. It was then regarded by some asylum medical officers as "the topic of the hour," largely because of certain views on administration which I had expressed and certain innovations in methods I had made at the Stirling District Asylum.

This method of caring for the insane has again come into prominence, on account of the somewhat alarming position that has been created by the shortage of male attendants in asylums. No class of the community has done its duty by voluntary enlistment for the war more loyally, and the difficulties caused by the departure of attendants, and the impossibility of getting suitable men to replace them, have been relieved in many asylums by the introduction, for the first time, of female nurses on the male side. In many other institutions the advisability of taking this departure from established routine is being seriously considered. Great interest has therefore revived in this method of care and nursing, and I have had the unusual distinction conferred upon me of being asked for the second time by the secretary of the Association to open a discussion on it. This is now a much easier task for me than it was ten years ago, for during the interval the principles and practices then advocated have been very widely adopted in Scotland. It is not too much to say that they now form a characteristic and firmly established feature of the modern Scottish system for the care of the insane.

Many of us have now grown so accustomed to female nursing, and value it so highly, that, on contemplating the subject, the question that comes most readily to our minds is—Why were women not always employed? To others who only know the mental hospital as it now is, with its carefully designed accommodation and its comfort, its good order and discipline, its skilful and intelligent nursing staff, its prevailing atmosphere of consideration for the patients and their medical care, the question also seems a very obvious one. But the mental hospitals of to-day are not less remote from the madhouses of 125 years ago than the period we live in from the bronze age, though we are still enslaved by many archaic traditions and practices inherited from them. The madhouses at the end of the eighteenth and the beginning of the nineteenth century were not hospitals, they were prisons for the safe custody of a dangerous class. Little wonder then that the methods they adopted were those of the prison, that "keepers" alone were employed on the male side, and that women were rigidly excluded from it. The modern mental hospital can justly claim to be classed with other medical institutions, but if so, it should fall into line with them by discarding an anachronism and by making use of women's mothering instincts and natural gifts for the nursing and care of male patients as other hospitals have done. There rests, it seems to me, a heavy responsibility upon those who now fail to do so.

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* Read in London on the 17th February 1916 at the general meeting of the Medico-Psychological Association.

1. *Auxiliary Female Care.*—The story of the introduction of women's help on the male side of asylums forms an instructive chapter in the history of the care of the insane, but it is only possible here to refer to the most important landmarks. Judging by the inertia to their employment that still exists in many quarters, although in a neighbouring country its success is an established fact, the man who first employed women in this way must have been of a very independent and original spirit. He was no less a person than Dr. Samuel Hitch, the founder of the Medico-Psychological Association. He introduced this system into the Gloucester General Lunatic Asylum in the very same year that he founded the Medico-Psychological Association, namely, 1841, and could he have survived till to-day to see the development attained by the twin offspring of his mind he would have much reason to be proud of both of them. Dr. Hitch employed the wives of his married charge attendants to help their husbands in the male wards, and I was informed by his widow that it was because of the harsh manner in which the male patients were then treated by the attendants that he was induced to take this step. This statement is confirmed by the minutes of the asylum, which I was permitted to see, in which it is recorded that this woman's husband had charge of the refractory ward. Dr. Hitch's lead was followed by many English asylums during the next forty years.

Another step in advance was taken in 1883 by Dr. R. M. Bucke of the London Asylum in Canada, who employed widows of good character in the male wards. Dr. Bucke was one of the most striking personalities of the American Medico-Psychological Association, and this experiment in his hands was a complete success.

A third step was taken by Sir Thomas Clouston, who had adopted Dr. Hitch's system, by placing a married couple in charge of the Male Hospital at Morningside. The husband then died, and in 1890 he appointed the widow in full charge, with the male attendants under her authority. He permitted her to engage the services of two ordinary asylum nurses to assist her, and occasionally female patients would help as well.

These three methods for the employment of women on the male side, namely, Dr. Hitch's, Dr. Bucke's, and Dr. Clouston's, illustrate what I regard as the phase of *Auxiliary Female Care.* Its defect lies in the fact that the nurses were few in number and only assisted the male attendants, and the bulk of the nursing, even in those wards in which they were employed, continued to be done by the male attendants. It would appear that no danger was apprehended to these women from the violence of the patients, but the selection of wives or widows of good character indicates that the risk of misconduct was recognised and thus guarded against.

2. *Entire Female Nursing.*—The first step towards the system by which a group of male patients is entirely nursed by women was taken by Dr. Turnbull in the Fife and Kinross Asylum in 1896. He placed a ward containing 30 male hospital patients, by day only, entirely under the charge of female nurses. Owing to the construction of the hospital very efficient supervision was capable of being exercised over these nurses by the Matron and the Charge Nurse of the Female Hospital. The proximity to the other male wards also enabled male help to be immediately summoned if necessary. The Scottish Commissioners in Lunacy at once realised that Dr. Turnbull's innovation constituted an important new departure and a great advance on anything that had been attempted before. Acting on the advice of Sir John Sibbald, who thought very highly of it, a similar arrangement was soon after introduced into the Glasgow (Gartloch), Lanark, and Perth District Asylums. In the year 1900, at the Stirling District Asylum, I placed a group of male patients, by night as well as by day, under the charge of female nurses, thus for the

first time frankly handing over the entire care and nursing of insane male patients to women alone during the whole 24 hours.

These arrangements just described may very appropriately be called the Scottish system of *Entire Female Nursing*, for its special features were not only developed in the Scottish asylums, but it has been very extensively adopted by them for nearly a generation. It is a totally different thing in practice from the system I have called that of *Auxiliary Female Care*, in which a few women assisted the male attendants. All who have had great experience of women nurses in male wards agree in saying that they are infinitely more useful if placed in sole charge of a group, and they much prefer it themselves. The patients benefit more certainly from their ministrations, for it provides a guarantee that they must be nursed by women. Under the system of *Auxiliary Female Care* there is a division of labour in the ward, and the nursing may be done by the men and the cleaning up and household duties by the women. The danger of misconduct, which has been already referred to, decreases as the number of nurses employed becomes greater, and is least when the care of a whole ward is handed over entirely to women. It must be remembered, too, that supervision and discipline in the asylums of the early and mid-Victorian period, when the system of *Auxiliary Female Care* was employed, were not so perfect then as they are now. What with the advent of efficient supervision and of the good class of men and women now engaged in asylum work, difficulties of this nature can be overcome and need not be feared in a modern asylum.

3. *The Hospitalisation of the Asylum.*—The employment of female nurses on the male side has not stopped at this stage of evolution in Scotland. Their introduction was in very large part due to the desire to make use in asylums of the very high standard of skill in nursing possessed by those who had been trained in our general hospitals. Three-quarters of a century ago, in Dr. Hitch's time, "Sarah Gamp" was in the flesh (*Martin Chuzzlewit,* 1843), and there cannot have been much inducement to employ her, or others like her, on the male side for the sake of their skill in nursing. Dr. Hitch's first female nurse attended to refractory patients. If this highly skilled form of nursing be desired, then women must be employed, for unfortunately men do not receive this training in our general hospitals. Large numbers of trained hospital nurses have thus been appointed during the last twelve years to the Scottish asylums in important positions for the sake of their technical skill and training.

Dr. Campbell Clark was the first to appoint a trained hospital nurse (Miss Mary Macfarlane) to the post of matron at the Kirklands Asylum, Bothwell, in 1880. In the following year he commenced the systematic teaching and training of his asylum nurses and attendants, as was the practice in general hospitals. The idea took root, and in 1885 the Scottish Division published the *Handbook for Attendants on the Insane*, the most enterprising action ever taken by a Division of the Association. This handbook, as is well known, has since been adopted by the Medico-Psychological Association, and has led to the granting of the Certificate for Proficiency in Mental Nursing and to the Registration of Certificated Mental Nurses.

The first hospital nurse to work within the wards among insane patients and asylum nurses was appointed by me at the Perth District Asylum in 1896. This was an important step, not only on account of its direct influence on ward work, but because it created a supply of hospital nurses who were specially trained for the duties of asylum matronship, which had not previously existed. The demand for these became so great that over three dozen of my own nurses have received such appointments in other institutions.

As all hospital nurses are accustomed to attend to male patients in the general hospitals, they think it the most natural thing in the world to continue to take charge of male patients in asylums. They have gradually extended the sphere of their usefulness far beyond the limits of the hospital wards on the male side to which they were first appointed and have invaded other departments. They have introduced innumerable reforms which have approximated the methods employed in the asylums to those in the hospitals, and amongst these the greater employment of women in the male wards is only one. The trend of events in Scotland has been such that this employment of female nurses in the male wards, when seen in its proper perspective, is found to be only a part of a much greater scheme or ideal that has flowed like a tide over the land—that of the *Hospitalisation of the Asylum*. It is fifteen years now since this ideal was organised into a working system at the Stirling District Asylum, and a paper describing the methods employed there, entitled "Hospital Ideals in the Care of the Insane," was published by me in the *Journal of Mental Science* in the year 1902. The details of this system go, however, beyond the scope of the present paper and include the building of asylum hospitals, the bed treatment of the insane, the study of the physical aspects of mental disease, etc.

Time is not only a great healer but a great judge, who decides most appeals by very convincing logic, and fifteen years is a liberal period in which to test the merits of a system of asylum management. It was said thirteen years ago by a distinguished member of our specialty that the "nursing of male insane patients by females" was "preposterous," and that to run everything in asylums on hospital lines was "a great fad." It must be hinted in palliation that this authority had not had any experience of the methods which he criticised so freely. This method of nursing is now as distinctive and as firmly established a feature of the Scottish system of care for the insane as the well-known Boarding-Out System. It is employed in some measure or other in all but two of the important asylums of the country, and in these the superintendents have so far failed to introduce it, not because they are opposed to it on principle, but on account of structural difficulties with regard to supervision, housing, etc. This wonderful unanimity of opinion and practice amongst Scotsmen, whose national proclivities do not tend to concord, is remarkable testimony in its favour, and points to the manifest practicability and overwhelming merits of the system. The *Hospitalisation of the Asylum* is still, on the whole, an ideal to be aspired to, but it, too, is steadily developing and gaining ground year after year. It will perhaps come as a surprise to many to know that in a fourth of the asylums in Scotland, and among them are included some of the large ones, the matron is head of the nursing staff on the male side as well as on the female. How many hospital nurses are employed as sisters or assistant matrons it is impossible to say, but it must be large, for 22 were lately doing duty in the military hospitals. A system such as this, which has survived the test of fifteen years' experience with enhanced reputation and has become national in scope, must now have some other qualification than "preposterous," some other appellation than "a fad," applied to it by all fair-minded and reasonable men and women. The man who sees no good in it, who thinks its adoption impossible, must believe that the Scottish Board of Control and the majority of the medical superintendents in that country, in other respects men with the reputation of being shrewd and level-headed, are labouring under an obsession.

Having briefly described the history of the introduction of female nursing in the male wards of asylums, I shall now refer to certain objections and difficulties.

In the first place, it is said that this work is not a suitable form of employment for women. In reply to this it may be pointed out that the work in question is actually being done by women in all but two of the Scottish asylums, and the consensus of opinion in Scotland, where experience of the system is unsurpassed, not only does not support but contradicts the objection. The personal offices that all nurses, including hospital nurses, may be called upon to perform in the nursing of adult males may be objected to and have been objected to. Between fifty and sixty years ago, before the movement started by Florence Nightingale had been given time to effect a reformation, I have been informed by my teachers that no woman with any self-respect or regard for her reputation nursed adult males in our general hospitals. Women from every rank of society are prepared to do so now, and are held in the highest esteem if they do. Is it not then clear that it is not the work alone that matters, but that the spirit in which it is done, the methods that are employed, and the character of the person who comes to the work are essential elements in any judgment upon it? If, therefore, the status of hospital nursing can be so transformed in the estimation in which it is held, may not a similar change by the adoption of similar methods take place in connection with asylum nursing? If approached in the proper spirit, if performed by approved methods, and if undertaken by the right persons, this form of employment has been found in Scotland quite suitable for women.

In introducing female nurses into the male wards for the first time the most reliable women on the staff would naturally be selected by anyone who wished the experiment to be a success. They should be experienced and they should not be young. The working unit should not be less than four in number. It is a great advantage to place a hospital nurse with asylum experience in charge of them. The methods employed in handling the patients and in the management of the ward should be those which have been adopted in general hospitals, on account of their regard for the decencies. It is naturally found that these can be most readily adopted for those patients who are confined to bed. When the patients are dressed and going about it is advisable to employ auxiliary male care, in the form of one or two trustworthy married attendants, to bathe the patients and to assist in other ways if required. I have never had the least difficulty in arranging for this small amount of auxiliary male care, and I have always found convalescent and working male patients willing to help the nurses.

In the second place, it has been said that the male side of an asylum is not a fit place for a woman to be in. The presence of good women always has a refining influence on male society, and whatever the conduct of male patients in speech and in general behaviour may be, the advent of female nurses among them, if managed with care, will effect a change for the better. The capacity of the insane for education in good habits, while not illimitable, is very extensive, and in practice it is never exhausted in our large institutions. Were we not so familiar with it, their good behaviour and self-control, for example during Divine service, would astonish us every week, as it does those who see it for the first time. If, therefore, it can be alleged of any asylum that its male wards are not a suitable place for women, then the sooner a reformation be effected the better for the patients there, for it is not a condition that need continue indefinitely.

It is then asked, are women who object to nurse male patients to be compelled to do this work? The answer is, of course not. There are women who object to nurse male patients, just as there are women who object to be nurses at all, but of the hundreds who have been nurses in the asylums of which I had charge, those who have objected during twenty years can be counted on the fingers of one hand. As a matter of fact, the vast majority prefer to do so, and the reason is not difficult to find. Male patients are always less troublesome and excitable than female, and women find that they receive more courtesy and readier obedience from men than from members of their own sex. They do not require to receive any extra salary to do this work, once it has been started, for the women are engaged, as they are in general hospitals, simply to nurse, and it is all in the day's work whether they nurse patients of the male sex or of the female. It is very doubtful if there be any saving in expenses by the employment of women instead of men, because owing to the higher standard of hospital care aspired to there is usually found to be a larger number of nurses required. In Scotland any saving there may have been from this source has been more than expended on an increased night staff, which is proportionally much larger than that employed in English asylums, and on hospital nurses for purposes of supervision, which is a practice that has now been largely adopted.

Lastly, it has been pointed out that many male patients, owing to their sexual proclivities, cannot be cared for by women. This is undoubtedly true, but the remedy is a simple one—do not place them under women; let them be cared for by men. It is unthinkable that any experienced administrator would allow a simple difficulty of this kind, with an obvious remedy, to deter him from the introduction of women nurses. It may give him a little more trouble, which at present he escapes, but that is no excuse for avoiding a duty. Every day of the year, in every asylum in the country, a much more difficult and responsible task of an analogous nature is faithfully performed—that of distinguishing the patients who are suicidal from those who are not, and of making special arrangements for their care. To pick out patients whom it is undesirable to place under the care of women is, compared with this, an exceedingly simple matter.

Far from the employment of female nurses in the male wards of asylums being unsuitable in form, out of place, and objectionable to them, in the high state of organisation and development now attained by mental hospitals, whatever may have been the case in the past, it is most appropriate and a beneficent duty to the insane male patients under our care. They appear to be the last class of the helpless to benefit from the superior aptitude and skill that women show for the duties of nursing, and this privilege should no longer be denied them, as it is overdue. The reason for this superiority of female nursing rests on a solid foundation—the mothering instinct in women. It is an instinct so strong that in many cases it cannot be suppressed and must manifest itself in one form or another. There are, of course, exceptional women and exceptional men, and we have all met male attendants who have been kind and devoted nurses. Nevertheless, nursing the sick, the infirm, and the helpless, be they sane or insane, is pre-eminently woman's avocation. Sir Thomas Clouston summed up the situation tersely when he said that all his nurses longed to work in the hospital, whereas all his male attendants wished to be kept out of it and preferred to do outdoor work, and that he never saw a man enjoy sick-nursing in the same way as many women do.

It has been remarked that only a small proportion of the male patients are in the hospital wards, but is not a great part of the work in an asylum indoor domestic duties, which in a private house are also performed by women? The cleaning and decoration of the wards, the bed-making, the laundry and repair of the clothing, the serving of the food and the social functions are all tasks which in private life usually fall to the lot of women. Can it then be doubted that they are as efficient, if not more so, than men, to perform these familiar occupations in asylums.

Moreover, it must not be assumed that female nurses are only of use for the care of the sick and helpless in an asylum. One of the surprises of the system in practice has been the discovery that they can usually exercise more control over cases of mania than male attendants, and the great advantage of their management lies in this fact, that it is based on persuasion and not at all on the show of force or on compulsion. Excited patients who are ready to fight any man who comes near them will often do anything they are told by a nurse, and they will become calm if they receive a word of sympathy from her. A woman has much the same influence over an insane man who is not actually delirious as she has over one who is supposed to be in his sound mind, and it is absurd to assume that all feelings of chivalry and honour die in a man because he suffers from some derangement of the mind.

The proportion of women it is desirable to employ on the male side of an asylum is, according to the Scottish Board of Control, at least 25 per cent. of the total day staff on the male side and 15 per cent. of the night staff. These figures are considerably exceeded in several asylums, among which may be mentioned the Stirling District Asylum. It may be taken as a typical county asylum in the accommodation it provides, in its complete organisation, and in the modern methods it employs. It admits over 250 patients annually, and has a resident population of over 800. Dr. R. B. Campbell, its medical superintendent, has employed for the last 7½ years, as I also did for an equal period, a staff on the male side by day of which 40 per cent. consist of women, there being 3 hospital nurses, including the matron. By night 27 per cent. of the staff consists of women, including the night superintendent, who is a trained hospital nurse.

It has been stated that female nurses are more suitable for asylums admitting parochial than private patients of the richer classes. That has not been my experience at Craig House. This is the department of the Royal Edinburgh Asylum for private patients, and it is quite a separate mental hospital from the West House, which provides accommodation for poorer patients. Of the staff of 32 employed on the male side by day to attend to 100 gentlemen, exactly one-half consists of nurses, including in this number the lady superintendent and 3 matrons, and of these 3 are hospital nurses. By night 6 out of a staff of 13 consist of women, including the night superintendent, who is a trained hospital nurse. These proportions vary from day to day according to requirements, and they have perhaps been swelled by the war, but there is no difficulty in employing 40 per cent. of women by day and 25 per cent. by night in a private asylum like Craig House. Of course there are special difficulties connected with private male patients which are not met with in the case of parochial patients, but the employment of women in their care on the whole is equally advantageous. The opinion of the friends of patients is worth quoting. The most interested relatives of gentlemen consist chiefly of anxious females, be they mothers, wives, or sisters, and nothing in my experience gives them greater comfort than to know that the relatives whom they entrust to our care will be tended by women. Rightly or wrongly, to them it is a guarantee that no violence will be employed, and that the most skilled nursing will be available.

In conclusion I have to state that these opinions—whatever may be their value—are founded on twenty years' experience of entire female nursing in male wards, and have been gained in four different asylums of which I have had charge during that time. I am now more convinced than ever that the mental hospital—the modern asylum—is only a hospital for the treatment of a special disease, and therefore requires to be run on hospital lines, of which the employment of women in the male wards is only one feature. Although many did not see eye to eye with me in the past I have learned to be patient, and I have had the satisfaction of seeing these views gradually accepted and the methods I advocated adopted. The ultimate hospitalisation of the asylum is now only a question of time, and that time has been hastened by the action of many medical superintendents of the English asylums, who, owing to one of the results of the war, have introduced female nursing in the male wards of their asylums for the first time. I trust that the observations I have made may assist others in coming to a similar decision.

REPORT ON THE RADIUM TREATMENT AT THE ROYAL INFIRMARY, EDINBURGH, DURING THE YEAR 1915.

By DAWSON TURNER, M.D., F.R.C.P.

SIXTY-FOUR patients attended for radium treatment during the past year, whereas sixty-three attended during the previous year. Of these forty-two were in-patients and twenty-two were out-patients. The war seemed at first to have the effect of diminishing the number of patients desiring radium treatment, but afterwards the number increased. As compared with the year 1914, there is a rise in the number of in-patients and a diminution in the out-patients. Twenty-four of the patients suffered from inoperable malignant disease, nineteen from rodent ulcers, nine from exophthalmic goitre, and four from nævi. Of the malignant cases sixteen were carcinomas and eight were sarcomas. As is well known, more benefit is to be expected from the use of radium in the latter class of cases than in the former. Myeloid sarcomas in particular yield very readily to radium, and when they are so situated as to be capable of being efficiently rayed the complete disappearance of the growth may be anticipated (*vide* Case VI.). Of the carcinomas, those situated in the vagina or cervix appear to be vulnerable to radium, and if localised can in many cases be entirely removed. Unfortunately recurrence after a variable interval is the rule. Life, however, is in the meantime prolonged; the patient may be greatly benefited by the relief of pain, the cessation of discharges, and by the gain of health, strength, and weight. Five such cases have been under treatment during the year 1915. A preliminary curetting is often of service; this acts by removing part of the growth and by permitting the radium salt to be applied more effectively to the root of the disease. The radium should not, according to the writer's experience, be screened in these cases except by such coverings as are necessary to preserve it from injury or to protect the sound tissues. Considerable doses of 3000 or more milligramme hours are required.

Detailed references to rodent ulcers are not now required, for the beneficial action of radium is generally acknowledged. If uncomplicated and situated on the skin they invariably do well and a cure can be expected. If they recur, which may be due to an insufficient primary treatment, they are easily removed by a second application. The cosmetic result leaves nothing to be desired, and there is scarcely any subsequent contraction of the skin—a point of importance in the region of the orbit. Nine cases of exophthalmic goitre received radium treatment; two of these were males. In accordance with the results obtained in previous years, and embodied in the annual reports of the radium treatment in the Royal Infirmary, such cases are benefited both in general health and in the special symptoms, even though there may be no actual reduction in the size of the affected gland. In one case (No. V.) the gland after radium treatment had extended laterally and the neck measurement had increased from 13¾ inches to 15¼, but the patient was stronger, better, less nervous, and the tachycardia had diminished. Colwell and Russ[1] state that Rave draws attention to the marked effects that X-ray exposures have upon the symptoms associated with pathological conditions of the thyroid, but that the effects upon the tissue of the organ itself are apparently of a very slight character. These experiments were performed upon cats and rabbits, and comparatively large doses were given. The writer is unacquainted with any similar experiments on animals with radium, but his clinical experience inclines him to agree with Rave's results—indisputable benefit is occasioned without any necessary obvious change in the organ, though it may become in the region of the exposure harder and denser. To avoid injury to the skin small doses should be given to different areas and the softer rays should be cut off, but where, as in hospital practice, time has to be economised, only very penetrating rays filtered through silver 1·4 mm. thick and with the radium salt maintained at a distance of 2 cms. from the skin should be used. Twenty milligrammes of pure radium bromide can under such conditions be applied for twelve hours without damaging the integument, and the patient can now be sent home for two to three months before making a fresh application, for the beneficial effect takes time before it is fully produced. Thus the treatment is short and simple, the dose can be accurately gauged, and the excitement to be avoided in such cases of having to face a working X-ray tube is obviated.

The further experience gained in the therapeutics of radium, while limiting its field of utility, has the more firmly established its value in certain well-defined directions.

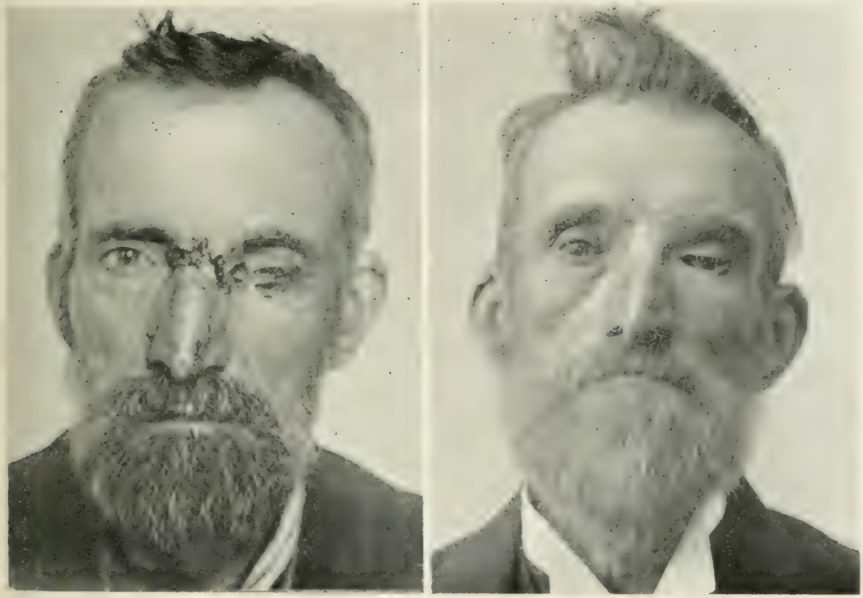
The serious disease in which it is of most service is undoubtedly rodent ulcer, in which it may be almost said to act as a charm. It will cause with the least injury to the skin the disappearance of papillomas, nævi, and recent cheloids. In exophthalmic goitre it is of great service. It is of value in malignant disease, either as a prophylactic after operation, or as a substitute for operation in cases in which it is undesirable to operate for any reason, or in inoperable cases as a palliative.

To illustrate the effect of radium in rodent ulcer two photographs from a collection are appended. The one was taken before the application of radium, the other some months afterwards. The following are brief notes of the more important cases treated, with the exception of rodent ulcers, which have been purposely excluded:—

1. *Exophthalmic goitre* in a woman of 31, recommended by Professor Gulland. Nervousness, weakness, tachycardia (150), perspiration, enlargement of thyroid. No exophthalmos. Neck 13¼ inches. This patient was given at different times during nine months a total dose, through silver 1·4 mm. thick, of 2350 milligramme hours. The applications were distributed over the gland so as not to expose the same area of the skin twice. The radium was also maintained at a distance of 1½ cms. from the surface. This patient is very much better and has been able to return to work. Professor Gulland wrote in April last concerning her, "I saw the patient to-day and am really very pleased with her. She is steadily improving." The neck measures 12¾ inches, the gland is harder and denser. She feels strong instead of weak, she does not perspire, and the pulse is almost normal.

2. *Exophthalmic goitre* in a male, aged 33, recommended by Professor Gulland. Duration, four years. Weakness, sickness, exophthalmos, swelling of thyroid. Neck 16 inches. This patient resides 150 miles away; he comes every six or eight weeks for a night's treatment. He has had a total dose, administered as in the last case, of 2025 milligramme hours during the last year. He is greatly improved, has gained 9 lbs. in weight, has had no sickness since the radium treatment was begun. Exophthalmos diminished, strength increased. Pulse down to 105. Neck 15½ inches. Professor Gulland writes on 27th January 1916: "I am very pleased indeed with this patient. Not only has his thyroid gone down but he looks very much better, and his heart is much more satisfactory. I don't see any reason now why he should not go back to his business as a draughtsman, at any rate for a short day."

3. *Exophthalmic goitre* in a female of 22, recommended by Dr. R. A. Fleming. Duration, five years. Diarrhœa, nervousness, palpitation (125), slight exophthalmos. Thyroid enlarged, neck measures 13 inches. She was given doses amounting to 1140 milligramme hours over the thyroid, and at her last visit a dose of 480 milligramme hours over the



J. M., ÆT. 69.—RODENT ULCER.

Treated by radium =1550 mg.-hours during a period of 48 hours, and a subsequent dose of 90 mg.-hours.
(Mr. Dowden's case.)

thymus. The neck measured 13 inches after ten months of treatment, but she is less nervous, and better and stronger in every way.

4. *Exophthalmic goitre* in a female of 26, recommended by Dr. R. A. Fleming. Duration, two years. Mr. Miles removed the right lobe of the thyroid six months before the radium treatment. Benefit resulted from the operation, but recently the left lobe began to enlarge and the symptoms to recur. Slight exophthalmos, marked palpitation, and nervousness. During six months she was given a total dose of 1540 milligramme hours over the left lobe. She is now stronger and better and able to do some house work. Neck 12¾ inches.

5. *Exophthalmic goitre* in a female of 38, recommended by Dr. R. A. Fleming. Duration, six months. Weakness, nervousness, excitability, some exophthalmos, swelling of thyroid. Neck 13¾ inches. During the last six months she received a total dose of 450 milligramme hours. General condition better, tachycardia less, but neck, owing to extension laterally of left lobe, measures 15¼ inches. This is an instance of a general improvement associated with a further enlargement of the thyroid.

The other cases of exophthalmic goitre have been treated too recently to allow of useful reference.

6. *Myeloma of the sternum* in a male, aged 32, recommended by Professor Gulland for radium treatment on 9th March 1915. Duration, two years, following an attack of pleurisy. The growth had steadily increased in size, and now was of the size of a large cocoanut adherent to the sternum. An X-ray examination suggested involvement of the mediastinum. The symptoms were increasing weakness, constriction of the chest, and shortness of breath. A consultation was held with Mr. Miles, who considered the case inoperable. The radium treatment consisted in the introduction by Mr. Miles of four aluminium tubes containing 10 to 20 milligrammes each of pure radium bromide into the right hemisphere of the growth, while at the same time external applications through silver screens 0·5 mm. in thickness were made. Thus the right hemisphere of the growth was subjected to an energetic cross fire of rays. The plan of treatment was to transfer at the end of a few days the internal tubes to the left hemisphere, but owing to the rapid diminution in the size of the growth it was not found practicable to introduce more than two of the tubes. The total dose amounted to 13,200 milligramme hours. A month after the treatment the growth had entirely disappeared. Professor Gulland remarked, in regard to this case, "that he had watched the tumour growing during the past eighteen months, that it was of very large size—quite as big as two fists—that he had been rather a sceptic as regards the value of radium in malignant disease, but that he was

now quite converted. The growth was a myeloid sarcoma." The patient has regained his health and strength and is back at his work. That was the patient's state six months ago. Since then a small recurrence, consisting of a flat elevation about the size of a half-crown piece, appeared over the sternum. This was given during a period of four months small doses, amounting in all to 250 milligramme hours. The recurrence disappeared, but was followed by an ulcer about an inch deep with cleanly cut edges and extending into the eroded sternum. No pain is associated with the ulcer, which is now filling up. The patient is taking iodide of potassium on Mr. Miles' advice. The recurrence and the ulcer have not prevented the patient from continuing with his usual work. Professor Gulland writes on 13th January 1916: "This patient had a long course of inunction and of iodide of potassium before the radium treatment, but without the slightest effect. The ulcer has impressed me more as a continued destruction of the tumour, which must have started from the centre of the sternum."

7. *Myeloma* in a female of 23, recommended by Mr. Dowden. *History.*—A year ago (October 1914) patient complained of a gumboil on the right side of the superior maxilla. A dentist removed some teeth and sent her to see Dr. Gibbs, who found a dentigerous cyst. From a microscopical examination of a scraping from this Dr. Gibbs recommended her to consult Mr. Dowden. The latter, through an opening in the hard palate, scraped out the cavity thoroughly. Pathologist reported the growth to be a myeloma. It lay posterior to the superior maxillary bone. Radium treatment was recommended as a prophylactic. A tube containing 10 milligrammes of pure radium bromide was attached to the end of a wire and passed up into the cavity, and a dose of 1920 milligramme hours administered. This was in October 1915. At the end of November she returned to her duties, and in February 1916 no trace of a recurrence could be found by Mr. Dowden, and the patient felt perfectly fit and well.

8. *Recurrent sarcoma* in a female of 49, recommended by Dr. Maclagan and admitted by Mr. Miles, 15th July 1915. Duration of disease four years. Patient has had several operations for the removal of the growth, but it has always returned quickly and grown bigger. There was now a large nodular mass projecting in the suborbital region and adherent to the maxilla. Pathological report, sarcoma. As Mr. Miles considered the tumour inoperable, treatment with radium was decided upon. Two tubes containing radium were introduced into the growth and capsules containing radium were applied externally, the latter screened by 1·4 mm. of silver. A dose of 5880 milligramme hours was given and the patient sent home, being told to return at the end of August. She did not return until 17th November. Dr. Maclagan wrote in August to report marked improvement. On re-

admission in November there was a large ulcerating mass closing the left eye. Mr. Miles, however, thought that the swelling was less. The mass was now so friable that it was difficult to keep tubes of radium introduced. External treatment was vigorously pushed and a dose of 5180 milligramme hours administered. During these applications the growth diminished markedly. Patient sent home. 1st February 1916, the tumour has much diminished in size, and to left of external canthus is freely movable; it was fixed before. She can now use the left eye quite normally, and she feels much better and stronger. The condition had so far improved that the whole of the fungating mass was excised, and a fresh course of radium treatment was given as a prophylactic against further recurrence.

9. *Epithelioma of the cervix* in a patient, aged 63, recommended by Dr. Brewis. Admitted 14th June 1915. Has complained of irregular bleeding for five or six months, but not of pain.

Per Vaginam.—There is a hard mass in front of cervix on anterior vaginal wall. Cervix friable; bleeds on touching. A preliminary curetting was decided upon. This was carried out by Dr. Brewis on 15th June. A tube of radium shielded below by leadfoil was introduced into the raw cavity and a dose of 5040 milligramme hours administered. Pathological report after curetting—"squamous epithelioma." On 7th October the patient was examined by Dr. Brewis, who reported that there was nothing abnormal to be felt now and that the part looked quite healthy through a speculum.

10. *Epithelioma of the cervix* in a patient, aged 30, recommended by Dr. Brewis. Admitted 6th July 1915. Patient has complained for the last four months of loss of health and strength and of a reddish-brown discharge. *Per vaginam.*—Vaginal portion of cervix rough, eroded, friable, bleeds easily, offensive discharge. Cervix widely involved, uterus fixed. After curetting, a tube of radium was placed in the cavity and a dose of 3360 milligramme hours administered. As the lower area of the disease had not been closely treated the radium salt was now applied to it and a dose of 3360 milligramme hours given. Total dose, 6720 milligramme hours.

30th September.—Patient much better, looks and feels a different woman, is stronger and stouter. The pain had also been removed. *Per vaginam.*—Cavity much smaller, granulations more superficial; a scraping withdrawn was reported by the pathologist to show squamous epithelioma cells. Uterus was movable. In consequence of the pathological report another dose of radium was given, amounting to 1920 milligramme hours. 10th December, patient improved both locally and generally.

3rd February 1916.—Patient is wonderfully improved and does not look like the same woman. *Per vaginam.*—Surface quite smooth, not friable, parts more mobile, no abnormal discharge. Per speculum, slight redness posteriorly, which is tender to the touch, but the tissue is in no wise breaking down. Patient sent home, but to report herself regularly in case of recurrence.

11. *Epithelioma of the cervix* in a patient of 55, recommended by Dr. Brewis. Admitted 15th July 1915. Patient has complained for some time of loss of health and strength, accompanied by pain and reddish discharge. *Per vaginam.*—Vaginal portion of cervix cannot be felt, but per speculum can be seen to be completely tunnelled out by the disease. Patient was curetted and the pathological report confirmed the diagnosis. A radium preparation was now introduced into the tunnel and a dose of 3360 milligramme hours given. To the inferior portion of the disease a dose of 960 milligramme hours was administered. Total dose, 4320 milligramme hours. 30th September, she looks and feels better. *Per vaginam.*—Walls of tunnel covered by friable material, granulations thin, scanty, of necrotic debris. Disease appears to be more superficial, but there is not so much improvement in this case as in the last—No. 10. The granulations are reported by the pathologist to be malignant. Patient has not returned since.

12. *Recurrent cervical cancer* in a patient of 50, recommended by Dr. Brewis. Admitted 30th September 1915. The patient's uterus had been removed fifteen years before by Dr. Brewis by vaginal hysterectomy. Patient has been well since the operation until the last two months, when an offensive discharge began.

Per Vaginam.—An ulcerating eroded mass was found; this was scraped and tubes of radium were introduced into the sloughing cavity. A dose of 5880 milligramme hours was given. Pathological report—squamous epithelioma. This patient has not reported herself since the treatment.

13. *Tumour of left shoulder* in a male of 63, recommended by Mr. Dowden. Admitted 18th September 1915. The X-rays show that the humerus has lost its lime salts. On palpation, find uniform thickening of head and upper part of shaft of humerus; pain on abduction, sudden pains at night. Duration, six months. Has had hæmaturia. Tips of fingers so swollen that he could not close his fist. On 11th September an incision was made through the deltoid into the tumour and three tubes of radium were inserted. There was a good deal of bleeding. External applications of radium were also made. Total dose, 12,650 milligramme hours. The tumour turned out to be a hyponephroma, but it was diminished in size by the radium treatment.

14. *Recurrent carcinoma of soft palate* in a male, aged 47, recommended by Mr. Dowden. Admitted 7th September 1915. The patient was operated on by Mr. Dowden on 2nd June and on 15th June, when the

glands were removed for a carcinoma involving the soft palate and the right side of the mouth. In September 1915 the patient returned with a recurrence. There was an ulcer below the scar on the right side of the cavity of the mouth. As a palliative measure a tube of radium attached to a holder was given to the patient to hold in the ulcer during his waking hours. A dose of 870 milligramme hours was given. Local burning and irritation was set up but the ulcer was improved.

15. *Tumour of posterior aspect of right thigh* in a female, aged 65, recommended by Mr. Graham. Admitted 9th September 1915. Duration, five years, but has been growing more rapidly during the last six months. Mr. Graham operated on 31st August, and removed the growth. As a prophylactic measure 20 milligrammes of radium were introduced through a glass tube into the wound on 9th September. A dose of 2400 milligramme hours was given. Pathologist reported it was a fibroma.

16. *Recurrent scirrhus* in a female, aged 50, recommended by Mr. R. C. Alexander. Admitted 18th February 1915. The right breast was removed three years ago for a scirrhous tumour by Dr. Henderson of Galashiels. Now in the region of the scar there is a lump 1½ inches long, firmly fixed down, and with an ulcer ¾ inch broad upon it. When recommended to me for radium treatment I suggested that the growth should first be removed by a surgical operation and that radium should then be applied to the wound as a prophylactic. As the patient refused all operative treatment she was given external applications of radium, shielded by 1·4 mm. of silver and with the radium salts maintained at a constant distance of 2 cms. from the surface. The position of the salts was also continually changed. A dose of 4400 milligramme hours was administered. On 13th April she returned. The lump and the hardness had disappeared, but the ulcer was still present and of the same size. Gave a dose of 960 milligramme hours to the ulcer. On 31st January 1916 Dr. Henderson wrote to say that the patient was worse, that the part treated by radium had extended, and that a large fungating mass had appeared in the right axilla.

17. *Recurrent epithelioma of temple* in a female, aged 56, recommended by Mr. Jardine. She has been twice operated on by Mr. Jardine—on 14th April 1915 and on 26th May 1915—when a wide excision of the growth situated over the temple on the right side was made. On admission on 10th June there was a flat lump of hard consistence (above the scar) 1 inch long and raised above the surface. A dose of 330 milligramme hours of radium was given. On 20th July the part treated was better, but a new lump had appeared above the ear. To give her a stronger dose Mr. Jardine admitted her as an in-patient. A dose of 3630 milligramme hours was administered. On 9th September

all signs of the growth had disappeared, but some facial paresis on the right side was present. Patient was dressed for about fourteen days after the radium treatment. The wound partially healed and the paresis diminished. She then left off attending, and has not returned since.

18. *Recurrent vulvar carcinoma* in a patient of 62, recommended by Dr. W. Fordyce. Duration, more than three years. First operation on 31st October 1914, second operation in January 1915, after which X-rays were used, nine exposures, ¼ pastille at each, screen 1 mm. of aluminium. These had no observable beneficial effect, as the growth continued to increase. Another operation was performed. Radium treatment as a palliative was suggested on 17th November. The patient at this time suffered from great pain and could not sleep without opiates. Disease very extensive, involving the vulva and vagina. An attempt was made to apply radium to the ulcerated surfaces at the entrance of the vagina, but the tubes were only with difficulty maintained in that position, being constantly pushed out. The thighs were protected by leadfoil. A dose of 2400 milligramme hours was given. Ten days after the exposure the patient's pain was relieved.

19. *Carcinoma of the cervix* in a patient of 37, recommended by Dr. Barbour. Duration, one year; pain on both sides and in back. Dr. Barbour made an exploratory incision on 9th July 1915. Uterus enlarged, cervix rough and irregular and friable. Curetted. Pathological report, basal-celled carcinoma. Case inoperable. As a palliative radium was tried on 2nd September. An aluminium tube containing 20 milligrammes of radium bromide was introduced into the cervix and a dose of 2880 milligramme hours administered. A short time after the treatment the patient stated that the radium treatment had relieved her pain. No improvement otherwise was noticeable. Dr. James Harvey has written on 4th February 1916 to say that the patient died in January 1916 after suffering considerable pain, hæmorrhage, and discomfort from the involvement of the bladder and rectum.

20. *Sarcoma of left nasal cavity* in a patient of 74, recommended by Dr. Farquharson. Admitted 9th November 1915. Duration, more than three months. Commenced by feeling of a choked nose, external swelling, etc. Pain at the back of the head. Dr. Farquharson operated on 18th October and removed the growth. Radium was suggested as a prophylactic. A radium preparation was attached to the end of a twisted wire and given to the patient to hold in the cavity, and a total dose of 200 milligramme hours was administered. Dr. Farquharson wrote on 3rd February 1916 to say that as the attacks of hæmorrhage increased he advised the patient, on account of her great weakness and age, to give up further treatment.

REFERENCE.—[1] Colwell and Russ, *Radium and the X-rays*, p. 212.

FROM RAILHEAD TO BASE HOSPITAL ON AN AMBULANCE TRAIN.*

DOWN in a hedged field at the end of the straggling mining village lies the Casualty Clearing Station—some twoscore large tents, their sagging roofs bedaubed with mixed colours to give some measure of invisibility from above. Along one side stretches a line of tall elm trees, and a cold night wind is blowing through their thinning branches. Up behind the little camp there rises a low hillock, holding up against the driving clouds a great stone Calvary that looks down on the mean little village. . . .

"Something big" has been going on up at the front since the early morning; you hear many rumours of a long-prepared attack, and the guns are still booming heavily a few miles away with deep, continuous reverberations. Since mid-day the clearing station has been full to overflowing, but still an endless line of motor ambulances moves down along the crowded road from the fighting line, through the village, and into the muddy field. It is night now, starless and dark as pitch, and a lashing rain is driven hard in your face before a bitter and rising wind; but still the cars are discharging their pitiful loads in dreary succession when the train is brought into the siding which serves this desolate little camp.

From the train itself you can see scarcely anything of the clearing station to-night, only the headlights of the cars as they turn through the gate, and a few hurricane lamps flickering here and there. Near one end of the train, at the wooden foot-bridge which crosses the stream separating the camp from the railway track, there stands a powerful acetylene flare, casting a circle of vivid light on the deep mud of the path. Save three or four feeble oil-lamps on the ground beside the long darkened train, this is the only light at the loading place. A few moments of uncertain waiting, and the first stretcher comes down, its weary bearers slithering and stumbling in the watery mire. As you watch the flare you see them emerge suddenly from the utter blackness beyond into the fierce glare of the light; they halt for a moment, while a cloaked officer standing on the bridge raises the waterproof sheet which protects the wounded man's face from the beating rain; a name is given and noted; the covering is dropped over the head, and the bearers move on again, seeming to vanish as by magic as they pass with their burden out of the light into the enveloping blackness. A pause, and another stretcher enters the circle of light; the same words pass, the same motions, and it too moves on, blotted out as suddenly as it appeared. Watching this, time after time, you feel as if a picture were being cast on a screen, and flashed off, over and over again; for there is something cruelly mechanical about it all. . . .

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* From Report of the Friends' Ambulance Unit, *The Friend*, 11th February 1916. Reprinted by permission.

Meanwhile, up at the far end of the train—a full three hundred yards' trudge in ankle-deep mud—the lying-down wards are gradually filling up; more slowly than usual, for the bearers to-night have the gait of men worn out, almost disheartened, by prolonged and ceaseless toil. The long coaches, their interiors gleaming white and dazzlingly white in contrast with the outer darkness, were clean and fresh smelling when the first patient was lifted in through the wide double doors. But now, after half an hour or so, the indefinable but unmistakable smell of wounded men straight from the trenches is making itself felt, and the spotless floor is stained with muddy prints, and running with water where the rain has dripped from the stretchers or scudded in through the open doors. The beds are filled, but after such a day as this has been there are more men to be carried than the beds can hold; every available square foot of space is needed Stretchers lie all down the central corridor, and leave you a passage of only ten or twelve inches; in the dispensary and in the treatment room they lie side by side on the floor: at the end of the train, one of the *fourgons*, dark and ill-sprung, holds a dozen and more. Of the sitting-up compartments every one is used for lying cases, stretchers on seats and floor. Walk up the train from one end to the other, and there will seem to be not a corner that has not its occupant; everywhere the same inert shapes under the dark, rough blankets; everywhere the same all-pervading smell, thick, sickening.

It is a slow and weary loading-up, harder than we have ever had before, and when at last the doors are closed and fastened the clock of the village church will soon be striking three. Slowly the train pulls off in the darkness, grating sharply over the roughly laid points of the siding, and the long journey to the base is begun.

The dawn comes soon, its cold grey light showing up the pallid, worn faces of the wounded men more relentlessly than did the shaded electric lamps. Outside the rain has ceased, and we are passing through a pleasant rolling country of green fields, curving woods, and quiet streams, beside which rise the delicate silver mists of autumn mornings. With the floor so encumbered, the ordinary round of ward duties takes longer than usual; but food has to be served to as many as can take it. The task of dressing the wounds of men who have had only the first field-dressing is a severe one, and taxes the energies of doctors, sisters, and orderlies for several hours on end. From the moment the loading-up begins until the last patient is off and the wards put straight there is scarcely more than a few minutes' rest for the workers on so heavy a trip as this. On and on the train runs, slowly for the most part, and by routes none too direct; the constant motion seems to become almost rhythmical, and as the day wears on men whose strained nerves were jarred by every jolt grow gradually calmer. Some men lie listless and brooding all day; many are cheerful, talkative, and even nonchalant; some are still only when sleep or drugs let them forget their agony, and some few who will never travel further are put off at halts on the route.

It is evening when at last the crowding spires of the old city for which we have been making come into view. In half an hour the off-loading will be starting, and all these scores of men whose care has been a long day's work will disappear from your life almost as soon as they enter it. What becomes of them afterwards you can only guess: your part is finished.

. . . .

Slowly we move towards the great city among the steep riverside hills, and the train draws up, waiting for signals on the bridge.

"Beaucoup de blessés ce soir, m'sieur?" asks the weather-beaten old sentry, looking up at the ward windows inquiringly, "Ah, oui," nodding.

"C'est malheureux, n'est-ce pas? Mais que voulez-vous?" with a shrug, "c'est la guerre."

M.

CLINICAL RECORDS

A CASE OF MYOTONIA CONGENITA (THOMSEN'S DISEASE) IN A CHILD.

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THE following notes and photographs illustrate the appearances met with in a typical case of this rare disease:—The great degree of muscular hypertrophy which the patient showed is characteristic of those cases in which the disease develops in early life; and it is such a striking feature that it is apt to lead to a mistaken diagnosis of pseudohypertrophic paralysis. On closer examination, however, this mistake is easily corrected. The prognosis is very different from that of pseudohypertrophy. The abnormality of the muscles is not likely to increase in later life, and, although the patient will probably always continue to be more or less handicapped in his movements, he may be expected to acquire an increasing skill in managing his unruly limbs.

The patient, Thomas B., 6 years old, had been under the observation of Dr. R. Kirk of Bathgate and Dr. John Hunter of Corstorphine, and was admitted to the Children's Hospital on 6th May 1915. The complaints were slowness in opening his eyes from early infancy, and stiffness in his lower limbs ever since he had been able to walk.

Family History.—He was the only child of strong, healthy parents, and no similar case was known to have existed in any member of the family.

Previous Health.—He had always been a healthy child, although he had perspired very much, and he had had no illnesses except measles, whooping-cough, and occasional sore throats.

Present Illness.—From early infancy it had been noticed that he often had difficulty in opening his eyes; this was especially seen after a fit of sneezing. He began to walk alone at 14 months; and soon after, his mother found that, when he was told suddenly to go anywhere, he could only move very slowly at first, but in a short time could run as fast as the other children. His parents had soon learned to make allowance for this peculiarity. He had often tumbled and was very slow in rising again; this difficulty still continued. Nothing wrong had been noticed in the movements of his arms or hands, and he was a good writer. The unusually large size of his

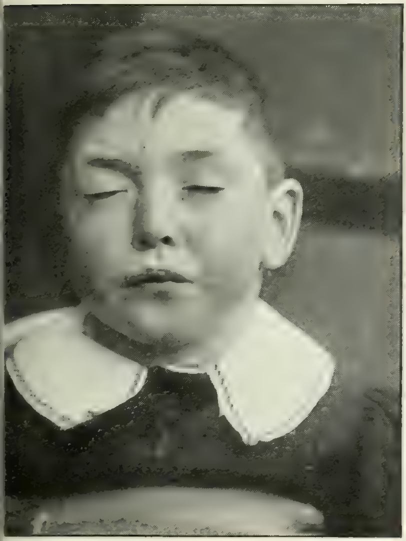


Fig. 1.—Eyes Closed.

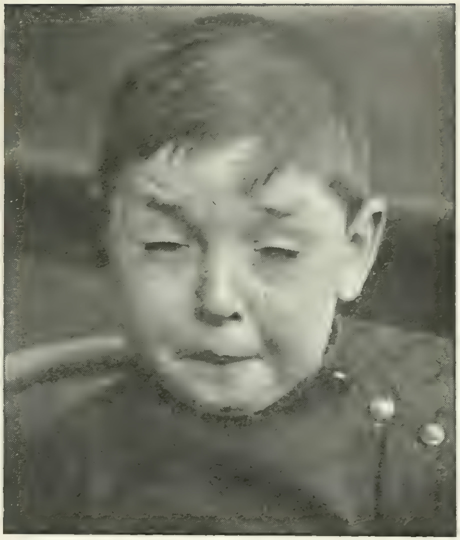


Fig. 2.—Trying to Open Eyes.

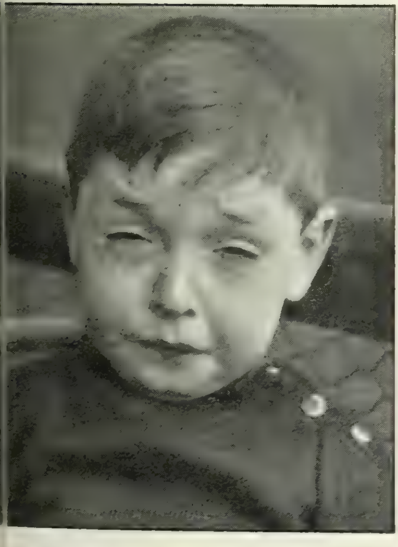


Fig. 3.—Beginning to Succeed.

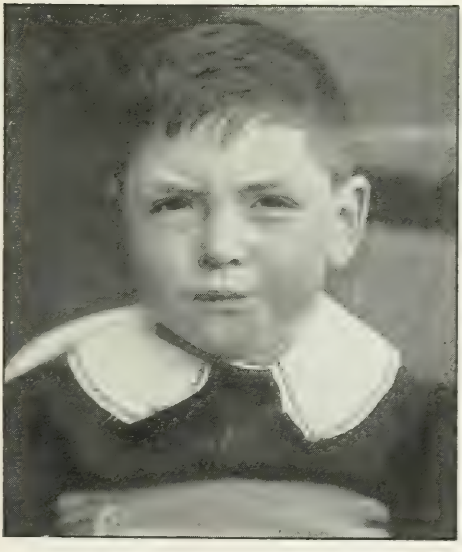


Fig. 4.—Eyes Opened.

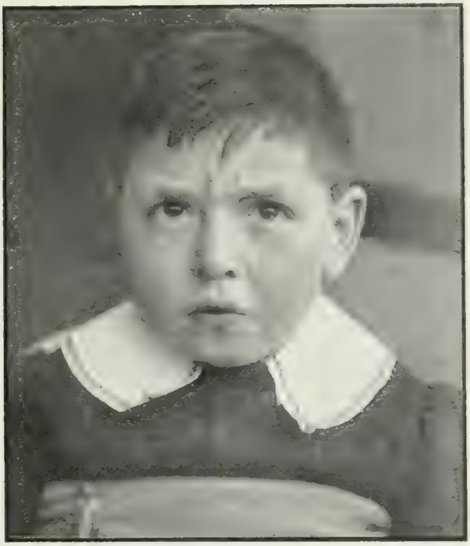


Fig. 5.—Eyes Opened at Last.

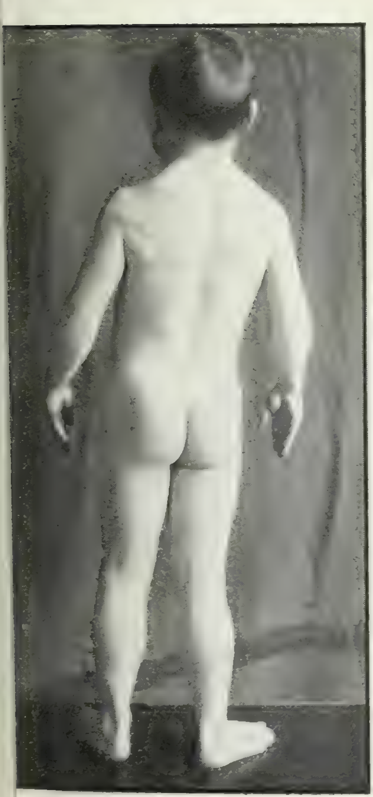


Fig. 6.

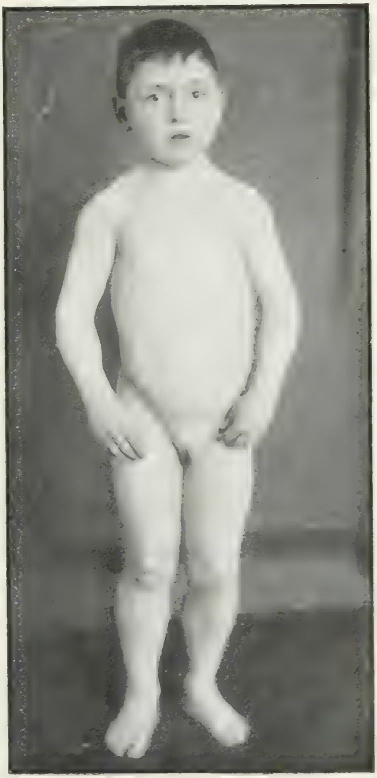


Fig. 7.

muscles, and especially the thickness of his neck, had been noticed. There had been no difficulty with micturition. His intelligence had always been rather above the average, and he had taken a very good place at school. On his way to the hospital, on his mother's complaining that the train stopped too long at the stations, he said, "It will go all the harder when it gets started, just like me!"

On Examination.—The patient is a healthy, happy-looking little boy, very well nourished and intelligent. His eyes are normal, but the difficulty he has in opening them quickly is striking; this difficulty rapidly passes off when the action is repeated several times in succession. Thus, when told to shut his eyes and then open them quickly, he took about 25 seconds to do so the first time, about 10 seconds the second, and about 5 the third time. The fourth time he opened them at once. The difficulty in opening the eyes is very well illustrated in Figs. 1 to 5, which are from photographs kindly taken for me by Dr. J. S. Fowler. There is a similar slowness in the descent of the upper eyelids when the child looks down suddenly. This peculiarity also passes off rapidly when the movement is repeated.

The voluntary muscles all over the body, including those of the hands, are much larger, and also stronger, than those of a normally well-developed child (Figs. 6 and 7). They show the same deliberation in contraction as the muscles of the eyelids whenever an attempt is made to bring them suddenly into action for the first time after a period of rest. This is more easily demonstrated in the morning than later in the day. The knee-jerks are present, but somewhat difficult to elicit.

The thoracic and abdominal organs are normal. Many of the teeth are carious; the tonsils are enlarged, and there is evidence of the presence of adenoids.

On 25th May 1915 the tonsils and adenoids were removed under an anæsthetic, and a small piece of the left gastrocnemius muscle was excised for examination. The excised portion of muscle was examined in the University Pathological Department by Dr. James W. Dawson, who reports: "The outstanding feature is a marked nuclear increase (sarcolemma nuclear proliferation). The muscle fibres are also slightly enlarged, and the longitudinal and transverse striation, as far as can be ascertained, is slightly more evident."

OBITUARY.

Sir WILLIAM TURNER, K.C.B., F.R.S., etc.

The Fates dealt very kindly with Edinburgh University and with the medical profession of Great Britain and Ireland when, in 1854, they sent Goodsir to London to find class assistants.

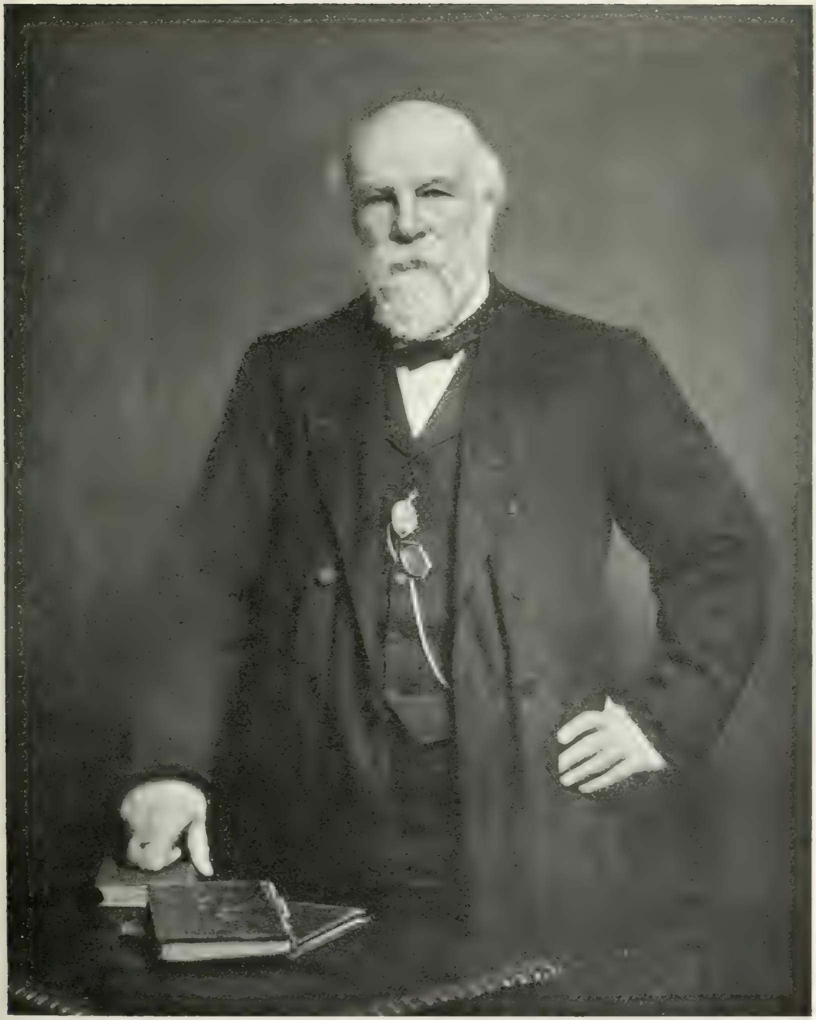
He chose William Turner as his chief assistant, but since "Heaven from all creatures hides the book of Fate," even Goodsir's acknowledged insight could not have discerned that he had found in the young member of the College of Surgeons, recently a student at St. Bartholomew's Hospital, an unrivalled teacher, an enthusiastic investigator, an astute organiser, and a strong ruler; yet all those qualities lay dormant in his newly engaged assistant, and two—the teaching and the investigating power—were soon to bud forth and become so strong that not even the unobservant could pass them by.

William Turner's first year in Edinburgh was not very happy; the conditions were in some respects unfavourable and experience had to be gained, but the grit, which showed so prominently in later years, was there, and, having taken hold, he held on, gaining power as he became accustomed to the new conditions, until, before long, he had established for himself a strong position. His duties during the earlier years of his work were to deliver daily a demonstration or lecture on topographical anatomy, to give a course of demonstrations on microscopic anatomy, and to superintend the practical instruction in the dissecting room, whilst in each Summer Session he gave a systematic course of lectures or demonstrations on some special department of anatomy, the subject varying from year to year.

As time passed and his experience and self-confidence increased his capabilities became so evident that, as Goodsir's ill-health grew in severity, the whole work of the anatomy department was placed under William Turner's control. His success under the new conditions was very marked, and when he became an applicant for the Professorship he was able to state that whilst he had been demonstrator the number of the students working in the dissecting room had never been below two hundred, and on one occasion it had risen to above three hundred, whilst his class of anatomical demonstrations, for attendance upon which no certificate was required by the examining authorities, was larger than any corresponding class in Edinburgh.

In spite of the large amount of teaching work which fell upon him during his first thirteen years in Edinburgh he found time to make numerous investigations and to write many papers, some of which were published in medical journals and some in the *Proceedings and Transac-*

Edinburgh Medical Journal, Vol. XVI. No. 5.



[Photo by Elliott & Fry.

Sir William Turner, K.C.B., F.R.S.
(*Circa* 1901.)

tions of the Royal Physical Society, and in those of the Royal Society of Edinburgh.

Up to 1857, whilst he was making sure his position as a teacher, he wrote, or rather he published, little, but after 1859 from three to ten communications a year came from his pen. Some were the result of chemical investigations, others of microscopical work, and the remainder were records of the result of macroscopical observations in human and comparative anatomy and anthropology. By their means he became known to the general scientific world, and the value of his work may be estimated by the fact that his candidature for the Professorship was supported by the bearers of names which are landmarks in anatomy and in the various sciences associated with medicine and surgery, as well as by men who gained outstanding places as physicians and surgeons. They include the names of Richard Owen, James Paget, George Rolleston, G. M. Humphrey, Allen Thomson, Joseph Lister, T. H. Huxley, Robert Christison, J. Y. Simpson, James Syme, J. H. Balfour, G. Viner Ellis, Luther Holden, J. Hughlings Jackson, Wm. Sharpey, Richard Quain, Joseph Hyrtl, Ch. Robin, Max Schultze, J. Victor Carus.

Moreover, his list of supporters included eight out of the twelve professors who at that time constituted the Faculty of Medicine of the University.

Strongly favourable expressions of opinion from men already famous, supported by the evidence of others who were soon to become famous, could not be passed by, and so, in 1867, he was elected to the Professorship of Anatomy and took up his duties at once.

Although William Turner, after he had accepted the position of demonstrator in Edinburgh, soon made his mark in anatomy, his earlier inclinations, whilst he was an apprentice and a student of medicine, were towards chemistry, and Mr. John Stenhouse, Lecturer on Chemistry in St. Bartholomew's Hospital, London, speaking in the Royal Institution on 2nd March 1855 on "The Economical Applications of Charcoal to Sanitary Purposes," remarked that about eighteen months before he had sent some charcoal, which had been in contact with the bodies of two dead dogs for a period of six months, to Mr. Turner, one of his pupils, for chemical examination, and he gave an account of Mr. Turner's analysis.

William Turner's inclination towards chemistry evidently continued for a considerable time after he became Demonstrator of Anatomy, but in 1861 he published in the *Edinburgh Medical Journal* a paper "On the Mode of Elimination of the Metal Manganese when employed Medicinally," which appears to have been his last communication on a chemical subject. In the meantime he had published an *Atlas of Human Anatomy and Physiology*; had obtained his degree of M.B. from the University of London (1857); had published the results of his investigations into the Structure of Nerve Fibres, and the Use of Transparent Injections; and had commenced the investigations into the Anatomy of the Cetacea, which he carried to completion in later years.

In 1864 craniology as well as cetacean anatomy began to interest him, and in 1866 he published a pamphlet on *The Convolutions of the Human Cerebrum Topographically Considered*," in which he reviewed the work in that direction which had been done by previous observers, and, in his usual careful and exact way, made very definite further advances. This pamphlet gained him considerable kudos, but it was merely the outcome of his desire to make practical application of his subject, for he himself, if the number of his communications upon them is to be taken as a criterion, was more interested in cranial deformities and the study of normal crania of various races and of prehistoric crania.

When first he came to Edinburgh he lived in the top flat of No. 1 Frederick Street, which still remains pretty much as it was in those days, though the lower part of the house has been considerably altered. After his marriage, in 1863, he went to 25 Royal Crescent, where he lived till the year he was elected to the Professorship (1867), then, for a short time, he was located in 7 Brunswick Street, and in 1869 he had moved to 6 Eton Terrace, where he remained for the rest of his life.

In 1861 he became a Fellow of the Royal College of Surgeons of Edinburgh and also a Fellow of the Royal Society of Edinburgh, of both of which institutions he was in later years to become a President, being elected to the Presidency of the Royal College of Surgeons in 1881, and to that of the Royal Society in 1908.

The fact that he was made President of one Society essentially practical, and of another as definitely scientific, is an indication of the wide range of his powers and sympathies; but his versatility, grasp of conditions, and capability are better indicated by a glance at the offices he filled during the thirty-seven years that he occupied the Chair of Anatomy. In 1869 he became one of the secretaries to the ordinary meetings of the Royal Society of Edinburgh, and occupied that position until he was elected Vice-President for the first time in 1891. He played a very important part in the negotiations with the Government with regard to the removal of the Royal Society from the Royal Institution to its present premises in George Street. In 1877 he was elected a Fellow of the Royal Society of England, and served on its Council in 1890. In 1873 he became a member of the General Medical Council, in which he represented both Edinburgh and Aberdeen Universities. He resigned his first membership in December 1883, but returned to the Council as the representative of Edinburgh in 1886. In 1898 he was elected President of the

Council, a position which he retained until after the termination of his tenure of the Chair of Anatomy. During three of the years in which he represented Edinburgh and Aberdeen on the General Medical Council—1878-1880—he was Dean of the Medical Faculty of his own University. In 1901 he was President of the British Association.

Even the work of so many and such varied offices was not enough to absorb the interests or the energy of this remarkable man, for throughout the period under consideration he continued to produce a regular series of papers and monographs dealing with many and varied aspects of comparative anatomy and craniology, and he acted as editor of the *Journal of Anatomy and Physiology.*

His contributions to the knowledge of the comparative anatomy of the placenta commenced in 1870, when he published, in the *Transactions of the Royal Society of Edinburgh*, a paper "On the Gravid Uterus and the Arrangement of the Fœtal Membranes in the Cetacea"; this was followed, in 1872, by descriptions of the placentation of the sloths and seals. His contributions to placental anatomy continued, at intervals, through the next three years, and in 1875 and 1876 he delivered his well-known "Lectures on the Comparative Anatomy of the Placenta" in the Royal College of Surgeons of England. His interest in the subject, however, did not terminate with those lectures, for he continued to investigate and write upon it until 1889, when he gave an account of the placentation of *Halicore Dugong.*

Whilst his placental investigations were proceeding he was also engaged in making reports upon the skeletons and skulls of various races, upon prehistoric skulls and bones, and upon several varieties of cranial deformity. His osteological investigations gained a wider field when the skeletons and skulls collected by the *Challenger* expedition were placed in his hands, and his reports upon the various groups of crania, upon the lumbar curve in different races, and upon "The Index of the Pelvic Brim as a Basis of Classification" are models of careful observation and precise and accurate description, whilst his "Contributions to the Craniology of the People of the Empire of India" display a wide and intimate grasp of difficult anthropological problems.

The scope covered by his energies indicates clearly a remarkably observant and capable man. Look at him as he was in the eighties, either as represented in photographs of that period, or as you knew him in his classroom, or in the lecture rooms of various Societies—not of imposing presence, but sturdy, broad-set, active, clear-eyed, straight-looking, and at times not a little grim—obviously a man who knew his own mind; had a strong liking for his own way; who was himself very clear and definite, and who was impatient with any scamped or slovenly work—a man who knew how work should be done and who saw to it that it was done both expeditiously and properly when he was in charge. The jovial kind-heartedness which was recognised in him in the fifties and sixties was somewhat overcast by the stress and strain of many important tasks, but it was there still, and it often reappeared at the dinners of various Societies to which he belonged, where his sly pokings of fun at his colleagues and friends was always kind-hearted and his numerous reminiscences were interesting, amusing, and instructive.

When he resigned his Professorship and took up the duties of Principal in 1903 his activities increased rather than diminished. He continued to publish his observations on craniology and the cetacea to within a short period of his death, and very shortly before he was attacked by his fatal illness he had commenced a new series of observations.

He lived largely for the University and latterly almost entirely for it. To his energy we are indebted for the new buildings; he took a very active part in the conferences regarding the formation of a Lister Institute in Edinburgh, and in January 1914, at the dinner of the Royal College of Physicians, he gave the first clear intimation, to the medical profession, of the proposed scope of the institution, which would have been well advanced by now had it not been for the intervention of the war.

The general recognition of his wide knowledge and scientific abilities is indicated by the numerous honorary degrees which were conferred upon him, and by his election to the Honorary Membership or Fellowship of many of the most noted scientific Societies and Institutions, whilst the value of his work to the University and to his country was endorsed by the Knighthood conferred upon him in 1886 and the Knight Commandership of the Bath to which he was raised in 1901.

By his death the University has lost a man who was entirely devoted to it, and whose like it is not probable that we shall see again for many years—an unrivalled teacher, who always had a complete grasp of his subject and who gave such a clear and definite presentment of it to his audience that the salient and important points could not be missed; an industrious and most capable investigator, who recognised that in scientific as in other matters "great is truth and mighty above all things"; a very capable organiser, who knew intimately both his means and his object, and so adapted the one to the other that he made difficult tasks seem simple and obtained expeditious results; a strong ruler, who knew his own mind and who pressed firmly forward to the end which he deemed to be good; an indefatigable worker, who could always find time for that which required to be done and who generally attacked the task nearest to hand.

Now he is dead, and he lies beneath kindly earth in the Dean Cemetery, but in Edinburgh the results of some of his work stand as visible monuments of his life, and the less readily seen but probably not the less important results are scattered over the world, wherever the numerous pupils educated under his care inculcate the lessons which he taught. Very many years will pass before the lifework of Sir William Turner runs the risk of being covered and forgotten by those "two narrow words *Hic jacet.*"

ARTHUR ROBINSON.

EMERITUS-PROFESSOR JOHN WYLLIE, M.D., LL.D., F.R.C.P.E.

WE have to record with sincere regret the death of Emeritus Professor Wyllie, which took place at his residence, 44 Charlotte Square, Edinburgh, on the morning of the 25th of January. There cannot be but a sense of sadness when the well-known figures finally disappear from our streets, and as we realise that never again can we meet them as they pass in or out from Infirmary duty. Of quite recent years we have had much of this experience, and it has not been confined to men who had passed threescore years and ten. In Professor Wyllie's case the nature of the physical disablement which made the resignation of his chair in the University and of his duties at the Royal Infirmary imperative led to a gradual break, and prepared our minds for the final severance ; and yet we poor mortals so cling to the material manifestation that a sigh escapes with the thought of "never again," for the dust must return to dust. Those of us who knew Wyllie think of him as he was before the signs of physical damage had declared themselves. If some of us did not know him in his student days we knew that he had been a distinguished student, that when a resident physician in the Royal Infirmary he was elected senior President to the Royal Medical Society. He spent two years as a resident in the Birmingham General Hospital, and it was during that period, if the writer is not mistaken, that he did his work on the larynx which was embodied in his M.D. thesis for which he was awarded a gold medal by the University. In the *Edinburgh Medical Journal* of 1866 this work in whole or in part was published under the title of "The Physiology of the Larynx." Birmingham, however, offered no sufficient attraction to a man of Wyllie's temperament, and he returned to Edinburgh and to Scotland which he loved so devotedly.

On his return to Edinburgh he proceeded to put his foot on the professional ladder ; he was elected a Fellow of the Royal College of Physicians, and when quite a young Fellow was appointed to succeed Dr. Haldane as secretary to the College. Soon after obtaining the Fellowship he began to lecture on pathology in the extra-mural school, years before the study of pathology was compulsory for the students aspiring to the Licence of the Edinburgh Colleges. In 1875 he was appointed Pathologist to the Royal Infirmary, in succession to Dr. Bell Pettigrew, a post he held for about two years. Even in this department the faculty of working out a method for himself was apparent, for he devised new steps in making a dissection, and like all the other things he touched, the new were more satisfactory than the older ones.

In due time he became an Assistant Physician to the Royal Infirmary, and in 1878 he began to lecture on practice of medicine in the extra-mural school. In connection with this class he delivered a summer course of instruction in medical laryngology, ophthalmology, and electricity. This departure was characteristic, for it meant that he had mastered the use of the laryngoscope and of the ophthalmoscope, and had followed the earlier phases in the development of electricity as used for medical purposes at a time when few men were doing so. When he took up subjects such as these, bearing upon medical diagnosis or treatment, he mastered them with a grasp and an accuracy that convinced those, who knew his attainments, of his brain-power when he pleased to direct it towards any object that to him was alluring or promised to be useful. In 1882 Wyllie was promoted from Assistant Physician to Physician to the Royal Infirmary, and for the succeeding fifteen years held that position and taught clinical medicine to the students who elected to study under him. It was in this position that he made his reputation as a teacher of students. Bringing the gifts he possessed—of insight, clear thinking, and unusual power of clear exposition—to bear on this work he soon became, perhaps, the most popular teacher of junior students in the Royal Infirmary. He continued the method, in vogue at the time, of the big clinique, a clinique so large that only a few men had the opportunity of taking part in the examination of the patient, so that the clinique continued to be an exposition on a case.

After having served the Infirmary for fifteen years, and his term of office being completed, he was made a Consulting Physician to the institution. In 1900, on the death of Professor Sir Thomas Grainger Stewart, Dr. Wyllie was appointed to the vacant chair. This brought him also back to clinical teaching in the Infirmary, and whatever interest he took in the teaching of systematic medicine there was no doubt as to the pleasure it gave him to return to clinical teaching. As a professor, he resumed his popularity as a teacher in this department. No change having been made when a fifth year was added to the curriculum, and when students had naturally and inevitably fallen into the two groups of junior and senior students of clinical medicine, Wyllie's methodical and earnest expositions, while still attracting the beginner, did not to the same extent continue to attract the senior.

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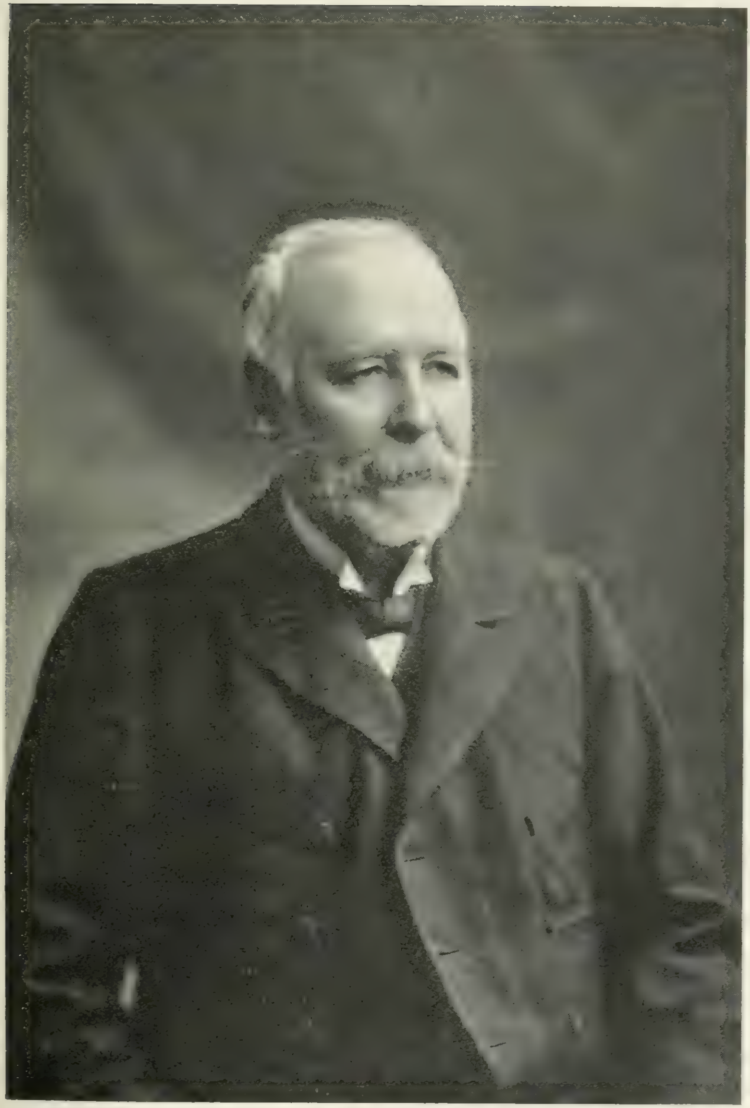

Photo by A. Swan Watson.

EMERITUS-PROFESSOR JOHN WYLIE.

He devoted himself without stint to the new and responsible duties of the systematic chair and of clinical teaching, and he continued to perform them with the sustained high sense of duty, with the attractiveness, with the efficiency which characterised his extra-mural days, and which but reflected the inherent qualities of his character.

During the years of clinical teaching he took up and mastered and elucidated the problems of stammering, led thereto by his earlier studies on the larynx; from that he was led to write the only large contribution he made to medical literature, namely, *Disorders of Speech*, a book which obtained an appreciative, if restricted, circle of readers. He also contributed some interesting papers to the *Edinburgh Hospital Reports*. He, however, was not fond of writing, and the teaching of the student seemed to satisfy any faint desire he may have had to be a medical propagandist. He loved teaching in the lecture room and the hospital ward, and he spared no trouble or time that those demanded from him.

As the professor of medicine he took a share in the deliberations of the Faculty of Medicine in the University, but for many years he took no part in general medical affairs or in any department of public affairs. He disliked controversy, with its acute differences; his bias was towards conservatism, and therein, no doubt, lay his abstention from taking part in the varying activities with which a large medical centre is constantly engaged. Medical politics with its aggressive and defensive operations actively repelled him, and he made no effort to resist the feeling of repulsion. His great hobby was literature and history, and in these he found a mental pabulum more grateful and more satisfying than controversies on teaching or other reforms. Desire for travel was gratified by spending holiday-time in one or other of the countries of Europe. When that was not practicable a motor tour through some fresh bit of Scotland or a fishing holiday with a friend filled in the weeks of recreation he allowed himself. He was an ardent lover of Nature, and the music of an upland burn was an unfailing joy to him.

Wyllie was a bachelor; he lived surrounded by books, and was an untiring reader. He was fond of music, and could sing a Scottish song with much expression and with the sweetest and truest of voices. He was an exceptionally friendly man, and one of the most loyal of friends. His friends loved him and admired him, and his death makes another vacant place, which is bigger than perhaps some of us thought it could be. We shall always think of him as the genial friend of sterling character to whom selfishness, self-seeking, and self-advertisement were entirely foreign—were, in fact, abhorrent.

He was born in Haddingtonshire in 1844, and was buried in his native county.

W. R.

RECENT ADVANCES IN MEDICAL SCIENCE

MEDICINE.

UNDER THE CHARGE OF

W. T. RITCHIE, M.D., EDWIN MATTHEW, M.D., J. D. COMRIE, M.D., AND A. GOODALL, M.D.

Pancreatic Insufficiency.

The signs which go to make up the symptom-complex indicative of disease and consequent ineffectiveness in action of the pancreas have been worked out with very great care by Spriggs and Leigh (*Quart. Journ. Med.*, October 1915) in the course of a series of observations concerning one case lasting over a period of eighteen months. They found that absence of trypsin from the fæces and failure to digest Sahli's capsules were constant signs of the condition, although diastase was present in the urine in normal amount. There was a great loss of fat in the stools (over 300 grms. daily), or about 55 to 99 per cent. of all the fat taken in the food. The emulsified fat of milk was much better absorbed than the fat of butter, meat, or cod-liver oil, and less fat was absorbed when a large quantity was given than when the ingestion was moderate. Nearly half the nitrogen of the food also appeared in the fæces. Sugar was present in the urine; this was at first readily banished by means of administering suitable food, but later in the course of the disease a longer and longer period of sugar-free diet was required in order to correct the glycosuria. Various ferments were added to the food and the effect observed; trypsogen caused an improvement in the absorption of fat and pankreon in that of nitrogenous food, but all others appeared to cause irritation of the intestinal tract.

Atrio-Ventricular Rhythm.

Mathewson (*ibid.*) records a case which displayed a rhythmic change in the mode of the heart's contraction. Graphic records showed that the beat was initiated by the sino-auricular and atrio-ventricular nodes alternately. A corresponding rhythmic change in the first sound and in an accompanying mitral murmur was observed on auscultation. The rate of the beat during the atrio-ventricular rhythm was either equal to or slightly less than that of the periods of normal rhythm, and as a possible explanation of the alternating rhythm the writer suggests a recurrent increase of vagal tone.

MOUTH INFECTIONS AS RELATED TO SYSTEMIC DISEASE.

The experience of the medical clinic at the University of Minnesota, where there exists a Research Professor of Mouth Infections, is given by Marx White (*New York State Journ. of Med.*, December 1915). The work done is of a co-operative nature, all cases admitted to the medical clinic having the mouth carefully examined for signs of dental or other buccal infection, and, if suitable, being thereafter dealt with by the dental service. Experience has shown that the principal sites of chronic bacterial foci are (1) the nasal accessory cavities; (2) the middle ear; (3) the tonsils; (4) the alveolar processes; (5) the genito-urinary tract; and (6) the gastro-intestinal tract, especially the gall-bladder and appendix. With regard to the tonsils, the importance of bacterial foci here in disseminating disease throughout the body is well known. In the present research the teeth have been found to be equally associated with the occurrence of serious heart, kidney, and joint affections. Streptococci are by far the most important organisms, having been recovered from diseased alveoli in 150 out of 162 cases examined. The streptococcus viridans was the form almost exclusively obtained, and although of low virulence was capable of producing lesions in experimental rabbits. Other organisms were frequently noted, such as the staphylococcus albus, bacillus coli, bacillus proteus, various sporing forms of the bacillus subtilis type, and the bacillus pyocyaneus. During the period covered by the research 565 cases were admitted to medical wards, and of these 55 or 9·7 per cent. had pyorrhœa or alveolar abscesses with mouth sepsis. Of these 55 cases tonsillitis was found in 15; chronic arthritis of the infective type was present in 16 and acute rheumatism in 7; endocarditis occurred in 25, and nephritis developed in 13 cases after other manifestations of disseminated infection. In 12 cases of the group studied, vaccines were made from the oral focus, and on injection produced aggravation of the joint lesions, thus demonstrating the relationship of the two infections. In none of these cases, however, did any brilliant curative results follow.

NEW SYMPTOM OF ULCER OF THE PYLORUS.

Stern (*Arch. of Diagnosis*, October 1915) records a symptom which he states occurs frequently in cases of ulcer at the pylorus, but which has not previously been recorded. This symptom is both of a subjective and of an objective nature, and the peculiar posture assumed by the patient constitutes it. The patient, endeavouring always to stretch out his epigastrium as far as possible, on account of the relief obtained thereby, often prefers standing to sitting, and while resting as comfortably as possible he assumes an inclined position so that his chest, abdomen, and legs form a straight line. In bed he lies as straight as possible, often on the left, but never on the right side.

SUPRARENAL INSUFFICIENCY.

The study of acute inflammation of the suprarenal glands in the infectious maladies has been during the last few years the object of attention for many workers. Oppenheim (*Le progrès méd.*, December 1915) has studied this subject recently among soldiers suffering from bacillary dysentery and other grave forms of enteritis. In cases with a fatal termination practically no morbid change was found in the internal organs except acute congestion in the liver and hæmorrhages, with extreme friability of the suprarenal capsules. This writer recognises four degrees of the malady: a virulent form in which death takes place and pathological changes are found like those already mentioned; a serious form in which, in addition to the signs of dysentery or enteritis, the sick man is excessively prostrated and feeble; a moderate form in which the asthenia, prostration, pallor, feebleness, and rapidity of the pulse, hypotension and hypothermy are merely of secondary importance; and, finally, a mild form which affects a great number of patients and in which the suprarenal complication is recognised only by the special degree of asthenia and arterial hypotension. The importance of recognising the condition lies in its treatment by the administration of suprarenal extract, and the writer does not hesitate to inject two to three milligrams of adrenalin in the 24 hours.

Williams (*Arch. of Diagnosis*, October 1915) insists that neurasthenia and hypadrenia are one and the same condition, and that the latter term is the preferable. He mentions several cases illustrative of his contention in which death happened to take place, and the neurasthenic or psychasthenic symptoms were found to be explained by degeneration of the suprarenal capsules.

THE ROENTGEN-RAY DIAGNOSIS OF GASTRIC LESION.

With the help of twenty excellent illustrations, Squires (*New York Med. Journ.*, 15th December 1915) makes a statement of the signs on which from the radiographic point of view the diagnosis of various pathological conditions of the stomach may be founded. In gastric carcinoma he lays stress on (1) filling defects; (2) absence of peristalsis in the part involved; (3) mobility limited in degree owing to adhesions; (4) the superposition test, which means that if successive radiograms be placed one on top of another, the indentations of the stomach edge are found to be permanent; (5) pain at the site of the filling defect observed while the screen examination is in progress; (6) changes in the pylorus, which may be gaping or obstructed; (7) residue in some cases, in others none; (8) advanced position of the opaque meal which is found to have already passed into the transverse or descending colon, when the examination is made 6 hours after its administration. The diagnosis of chronic gastric ulcer, again, he bases upon the following signs:—(1) Permanent irregularities in the contour of the stomach or cap, *e.g.*, the bismuth-filled crater of an ulcer; (2) interruption of peristaltic contractions: (3) the presence of an incisura or permanent indrawing of the circumference of the stomach; (4) locating pain directly over the defect observed during the screen examination. The signs which he considers of chief importance in cases of duodenal ulcer are (1) persistent defect of the duodenal cap; (2) sharp localised pain; (3) hyperperistalsis. J. D. C.

SURGERY.

UNDER THE CHARGE OF

J. W. STRUTHERS, F.R.C.S., AND D. P. D. WILKIE, F.R.C.S.

GUNSHOT WOUNDS OF PERIPHERAL NERVES.

BORCHARDT, Gratzl, and Grosse publish their experiences of nerve injuries in the present war in the *Beiträge z. klin. Chirurg.* (Bd. xcvii. Heft 3), the seventh war surgery number of that journal, and the papers are of interest as showing the results obtained by German surgeons in cases which are of very frequent occurrence at the present time.

Borchardt has seen some hundreds of cases, and it is noteworthy that he has operated on only 70. The indications for operation were determined in consultation with neurologists, notably with Oppenheim. Persistent complete loss of function was the most obvious indication, and usually indicated division of the nerve. It is important to bear in mind, however, that complete loss of motor and sensory conduction may be present for some months without loss of continuity, and only after 8 or 9 months have passed without any sign of returning function, and with a complete reaction of degeneration, can it be stated with certainty that division has occurred. Borchardt does not wait for this final proof of division, but operates whenever the symptoms indicate a possible loss of continuity by division or scar formation, and maintains strongly that operation should be done at the earliest possible moment, provided that an aseptic result can be assured. He draws attention to the fact that, especially in the sciatic nerve, part of the trunk may be divided with resulting complete loss of function in the area supplied by the injured fibres, while the rest of the nerve is intact. This complete loss of function in part of a nerve is an indication for operation. In contrast with this are cases in which a nerve or part of a nerve shows only a partial loss of function, *i.e.*, where sensibility is not completely lost and the reaction of degeneration is not fully developed. In such cases operation is not indicated, unless severe pain is present, which necessitates an attempt being made to relieve it.

Among the 56 cases of which full notes are given 18 showed complete division and one showed partial division. In other cases the nerve was interrupted by a more or less extensive scar, and in others by involvement in exuberant callus with resulting pressure. As regards the technique of the operative treatment, Borchardt states that he has given up using a tourniquet, for its use is too apt to be followed by post-operative oozing with the formation of a hæmatoma and its subsequent organisation round the nerve. The greatest pains should be taken to ensure complete hæmostasis at the end of an operation for nerve suture. As often as possible direct end-to-end suture by fine stitches inserted in the perineurium should be employed. Borchardt has had little success after implantation, although he does not condemn it altogether. In suturing, the greatest care should be taken to unite the ends in their exact anatomical relationship to each other, and in order to ensure this the ends should be thoroughly freed and very carefully inspected. A very difficult problem is presented when a scar has to be excised from a nerve, for its full extent is difficult to determine with the naked eye. The scar should be excised millimetre by millimetre till an apparently normal cross section is seen, and in cases where complete excision threatens to make direct union impossible, a compromise must be effected and the scar only removed to the limit which will allow direct union to be made. After operation the limb should be fixed so as to take any strain off the stitches for 14 to 16 days. Thereafter, active treatment by massage, movements and electrical stimulation should be begun and energetically carried on as long as possible. As regards results, Borchardt was able to refer to 25 cases observed for more than 3 months after operation. In 21 of these improvement, more or less marked, had taken place, while in 4 no benefit had resulted. He refers to 3 cases in which very marked benefit was evident 37 days, 3½ months, and 4½ months respectively after operation, and makes the general statement that return of function has appeared sooner than our former more limited experience had led us to expect. The paper is accompanied by a series of drawings of the various conditions found at operation.

Gratzl, in a shorter paper, gives details of 15 cases, 9 of nerve suture and 6 of neurolysis, and the chief point of interest in his cases is that in nearly all where suture was carried out some form of plastic operation was necessary. This consisted in splitting one or both ends for a variable distance and turning up or down a portion of the split end or ends to effect union. The sutured nerve was then enclosed in fat. In spite of the impossibility of making exact anatomical reposition in these cases, good results were obtained in 11 patients, as shown by the return of electrical conductivity in the affected nerves. Gratzl is therefore less inclined than Borchardt to lay stress on the necessity for extreme care in securing exact anatomical reposition of the divided ends of a nerve.

Grosse records 33 cases. Like Borchardt, he always operates without a tourniquet, and he makes a point of trying to avoid opening up old bullet tracks, for he states that organisms may remain latent in them for a long time and give rise to suppuration if the tracks are opened up. When the surroundings of a sutured nerve are normal he, again like Borchardt, uses no special covering for the nerve, but when it lies in scar tissue he surrounds it with a portion of saphena vein or of an artery taken from a calf, and prepared in the same manner as catgut. He did 37 operations on 33 patients, and at the time of his report had had 12 cases with good return of function, 7 with slight return, and 18 without any. His good results were all in the upper extremity. In no case had operation on the sciatic nerve yielded any positive result, although in the cases treated the operative difficulties were not great.

WOUND TREATMENT IN WAR.

P. von Bruns (*Beiträge z. klin. Chirurg.*, Bd. xcvii. Heft 2, 6th War Surgery Number) gives a brief review of the aspects of wound treatment in the present war as carried out in Germany. After an initial reference to "Lister's immortal discovery" he recalls that von Bergmann gave up, after a thorough trial, the application of antiseptics to wounds in the Russo-Turkish war, and contented himself with the application of an antiseptic covering, otherwise leaving the wounds uninterfered with. He then refers to the conditions obtaining in the South African War, and contrasts them with those in the present war, emphasising the immensely greater number of shell, bomb, and hand grenade wounds met with now, especially in the West. According to Garrè's experience in Champagne, five-sixths of severely infected wounds were caused by hand grenades. While accurate returns from the front were not available, Bruns quotes a communication from a "reserve" hospital, which says, "the war surgery with which we have to deal, away from the front, reproduces, in many respects, the conditions of the pre-antiseptic days. All the tragic complications of wounds, which seemed to have been happily overcome and to belong to the past, are the daily objects of our treatment." In one hospital 23 cases of infected wounds of the knee-joint were treated. Of these only 15 survived, and only 6 without amputation.

Bruns asks what antiseptic treatment has actually accomplished in this war. He refers to the work done by Wright, to the varying recommendations made by Moynihan, Watson-Cheyne, and Carrel, and then states that German surgeons combat infection with "physical rather than chemical antiseptics." They believe that the direct destruction of organisms implanted in a wound by antiseptics is impossible and that only indirect methods are of avail. In the first place absolute rest is of great value. When signs of infection appear, elevation of the part should be employed, if possible, to relieve tension, and free incisions, counter openings and drainage should be established. Foreign bodies and sequestra should be removed, and irrigation with salt solution or weak unirritating antiseptic lotions should be used. All manipulations should be of the gentlest character. The dressings employed should be applied moist and be frequently remoistened, but they should never be covered with waterproof material. In severe cases baths or continuous irrigation may be used. Bruns has no more specific directions to give, and concludes by appealing to his colleagues to publish their experiences in the treatment of infected wounds, which is, as he says, by far the most important subject for consideration in present-day war surgery.

The Use of a Wire Tourniquet in Thyroidectomy.

Leonard Freeman (*Amer. Journ. of Surg.*, January 1916) describes a simple procedure which seems to simplify thyroidectomy considerably. After exposing and dislocating a lobe of the thyroid in the ordinary way he places a piece of wire about the size of a knitting needle on each side of the lobe, at its base, and ties the wires firmly together, thus controlling the circulation and enabling the lobe to be cut away without any bleeding or application of artery forceps. Attention to the following details is of importance in using the method :—The wires should be stiff without being quite rigid, No. 17 being a good size for the purpose. Heavy braided fishing line, No. 2 or 3, is suitable for tying the wires together. Three or four loops of this are firmly tied to one wire and then passed through the base of the lobe at the centre and upper and lower ends. The second wire is then applied and the loops tied round it so as to bring the two wires together, enclosing the base of the lobe. The lobe can then be cut away and the stump firmly sewn over with a catgut suture. If this is done carefully separate ligatures for the main vessels are not required. Freeman claims that his plan obviates danger to the recurrent laryngeal nerve and parathyroid bodies, and avoids the undesirable crushing of the goitre as occurs when a large clamp is used. J. W. S.

OBSTETRICS AND GYNECOLOGY.

UNDER THE CHARGE OF

A. H. F. BARBOUR, M.D., AND J. W. BALLANTYNE, M.D.

Obstetrical and Gynecological Aspects of National Natality.

In these days when the imperial importance of a large supply of healthy and well-formed babies is coming to be recognised not only by a few enthusiasts in race-culture but by the medical profession as a whole and even by the non-professional public in general, all aspects of the problem of natality must be looked at. One of these aspects is considered by

M. Ellis Essen-Moeller (of Lund in Sweden) in his article on sterilisation from the view-point of hygiene of the race (*Arch. mens. d'obstét. et de gynéc.*, ann. iv., 1915, p. 257). Essen-Moeller refers to the fact that obstetricians often find themselves in the presence of cases in which pregnancy obviously constitutes a considerable risk to the life of the mother, and he names in illustration grave conditions arising from kidney disease or heart trouble. He thinks that there is a general consensus of opinion as to what should be done under these circumstances (a conclusion to which all will scarcely be able to accompany him), and he therefore devotes himself to a more debatable matter. He instances the cases of repeated puerperal psychoses: in them pregnancy does not bring a direct menace to the life of the mother, but it undoubtedly has consequences both for the woman and her family which are highly painful and embarrassing. He has had the misfortune of having to deal with five mothers who after several or after all their confinements became insane and had to receive asylum treatment. They were all, it is true, restored to mental health after a longer or a shorter time, yet it needs only a little imagination to picture what a gestation in such a woman means to her family as well as for herself. As Essen-Moeller says, the hopes and the joy which a pregnancy would otherwise awaken are here darkened by the shadow which the psychosis throws before it and long before it, for experience has shown with what painful certainty the mental disturbance arrives with each gestation. Amongst many inconveniences to the husband and the family of such a patient that of financial anxiety and pecuniary sacrifice must not be forgotten. The writer thinks that in such circumstances the question is not whether it may be right to prevent a future pregnancy but rather whether it is not the medical attendant's duty to do so. He does not think it necessary to bring into the discussion the risks to the infant, for he says that if it can be shown that the disturbed mental state of the mother is prejudicial to the infant it only makes the duty of ending the gestation more pressing. Consequently in all these five cases he sterilised the woman by operation (bilateral salpingectomy) after consultation with a professional colleague. But there were two other cases: one was that of an imbecile woman, twenty-six years of age, who had given birth to two infants, and the father of her second child was her own father: the other was that of an epileptic quadripara, aged thirty-two. On both these women Essen-Moeller (in the first case after consultation) performed bilateral salpingectomy.

Essen-Moeller is quite awake to the gravity of the questions involved. In Sweden he feels that he is advocating novel procedures, but he points to the United States of America as having made a beginning in legislation restricting procreation in certain cases, and he reminds his readers that Swiss alienists in 1905 asked for similar legislation for their country. As was to be expected, enthusiasm has been excited in some quarters and violent criticism in others. The whole question of the rights of individual liberty and of the claims of society to protect itself by interfering with these rights is involved; but, as the writer fairly points out, there has already been an invasion of private rights in the case of infectious diseases. At the present time Swedish legislators are considering the interdiction of marriage to the subjects of venereal maladies in their contagious stages, and as long ago as 1758 a Swedish law declared that epilepsy constituted an obstacle to marriage. But the interdiction of marriage does not meet the case, for obviously it will not prevent epileptics (for instance) procreating; the induction of abortion likewise is insufficient. There remains, therefore, operative sterilisation. There are four possible objections which may be taken to legitimising such a procedure. The first is the paucity of exact knowledge respecting hereditary transmission even since the Mendelian discoveries have helped to illuminate part of the field; yet something is definitely known, and hæmophilia is a case in point. The second objection is that before the diagnosis of the incapacitating state has been made the individual may have procreated children; but clearly this criticisim falls before improved powers of diagnosis and prognosis. The third objection is a double one—the diminution of natality and the further relaxation of morals; but the answer to the former is that no race can benefit by breeding from the "shots," and to the latter that the operation may act in exactly the opposite manner. The fourth and final objection is that the operation of sterilisation is brutal and repulsive, and that the end desired can be met by internment. But in this connection Essen-Moeller points out that it is not castration which is being considered but a procedure which leaves the genital glands intact, that the operation of salpingectomy or of vasectomy can be easily and, in the case of the latter at least, quite safely performed, and that the interdiction of marriage is ineffective, whilst measures of internment are more repulsive to the people affected than the performance of a slight surgical procedure. There is in Switzerland a village in which nearly all the males are the subjects of hæmophilia, and their female relatives have all determined not to marry; Essen-Moeller asks whether sterilisation would not have given a more reliable guarantee and have demanded a much less sacrifice. The writer is convinced that in certain cases sterilisation is justified, and that it is the only measure which reconciles the liberty of the individual and the legitimate interests of society; but he doubts if the time has come for setting the law at work, for to pass a law which could not be observed would be worse than not to make it at all. He is of opinion that in the meantime it will be sufficient that a doctor, in consultation with alienists or other specialists, shall have the right to operate, according to the voice of his conscience, when it seems to him that in the particular case the state of the patient indicates it. In this way further experience of a very valuable kind may be gained. The safeguard of a consultation is of prime importance; and every one will agree with Essen-Moeller in respect of this precaution.

In the same medical journal (*Arch. mens. d'obstét. et de gynéc.*, ann. iv., 1915, p. 271) Dr. G. Vitoux considers the campaign against abortion and the means to be taken to raise natality in France, and no one can doubt the importance of the issues involved. He rightly emphasises the amazing consumption of male lives in the struggle now going on in Europe as a pressing reason for the making of a great effort for the raising of the natality in his own land; but there is reason to agitate in this matter in all civilised countries. He refers to the means already taken, to the National Association for the Raising of the French Population, and to the three articles of a law proposed in 1910. It is worth while noting what these three articles were. The first laid heavy military burdens on all unmarried men who shall have attained the age of twenty-nine, burdens taken off only after twenty-five years of service; the second shut all appointments under the State to men who were not married when they had attained the age of twenty-five years; and the third enacted that every one should have the free and complete power of disposing of his goods. Advantages were also given to those servants of the State who had more than three children. Professor Lannelongue, who proposed this legislative procedure, was, however, driven to realise that the matter was too complicated to be settled in any such way, and on further consideration he placed before a Commission appointed for the purpose the following six possible plans of procedure. The first concerned itself with lessening the number of abortions and with checking other causes of fœtal and infantile mortality; the second attacked the problem of celibacy and proposed legislative means to restrict it; the third had for its object the removal of the obstacles to early marriage, by reducing troublesome formalities, etc.; the fourth encouraged and favoured large families; the fifth, by altering the laws of succession, etc., attempted to increase the number of children in families which had been self-limited to one or two infants; and the sixth tried to find out ways of increasing the births in the families of servants of the State and of diminishing celibacy in the same circles.

The Commission adopted these plans, and appointed a sub-commission to inquire into the measures which might be taken against the production of abortion. Vitoux is of opinion that it was high time some such measures should be taken, and he refers to the number of publications which are being circulated among the working classes openly counselling the prevention of conception and advocating the interruption of pregnancies already commenced. Some of these pamphlets declare distinctly that it is the most legitimate right of everyone to decide whether or not they are to have a family, and one at least goes so far as to say that a woman must have every liberty to bring about abortion if it seems good to her ("chaque femme doit avoir toute licence pour se faire avorter si bon lui semble"). The matter has been discussed in the public press, and one paper with a large circulation has estimated that each year 500,000 infants are found wanting in France because they are destroyed before they see the light; if these were saved the births would be raised by 40 per cent., from 700,000 to 1,200,000. The sub-commission has now studied the whole matter of abortion, and has come to the conclusion that certain measures require to be adopted. But already it has become evident that one of these, the first, is at present unworkable. This was the compulsory notification of abortions to the judicial or administrative authority. This conclusion has been unwillingly reached on account of the opposition shown by the medical profession to a measure which would violate the secrecy of medical practice, notwithstanding the fact that the Third Medical Congress of French Physicians in 1910 came to the agreement that an abortion, whether due to natural causes or not, should be placed among the diseases liable to obligatory declaration. There were, however, other measures proposed, and these with slight modifications were adopted by the French Senate in March 1914, with the result that Article 317 of the Penal Code is altered in its working. Heavier penalties are now incurred by anyone who shall provoke a miscarriage whether the provocation succeed or not, and these penalties include imprisonment for from six months to three years and fines ranging from 100 to 5000 francs; but further, the meaning of the term provocation has been widened. It now includes lectures given in public places or at public meetings; the selling, the offering for sale, and the advertisement in public places of all papers or documents or pictures or instruments which may be used to incite or procure abortion; and the distribution of such from door to door and the sending of them through the post or by other means. The Senate, also, has made a revision of these means to fight the anti-conceptional propaganda, and in a new edition of the law has arranged twenty articles in three groups. The first twelve articles deal with the management of maternity homes and with their inspection, the next five are for the suppression of abortifacient and anti-conceptional manœuvres, and the three last have to do with the penalties to be inflicted. It is noteworthy that the articles of the second group make the measures against abortion-mongers much more stringent, for they punish even the dissemination of advice (for the production of abortion or against conception) even if the crime be neither successfully accomplished nor so much as attempted.

Dr. Vitoux, whilst congratulating his countrymen and himself upon the legislative procedures adopted or likely to be adopted, cherishes no illusions regarding the insufficiency of the law in itself to work a reformation; a change in the morals and in the mentality of each member of the nation is needed to give the happiest consequences. It is necessary, he thinks, to recall to the minds of women the fact that their highest *raison d'être* is maternity, and to bring back to all the conclusion that it is criminal to oppose any obstacle to the fulfilment of this duty, so important for the future of the race. J. W. B.

OPHTHALMOLOGY.

UNDER THE CHARGE OF

W. G. SYM, F.R.C.S., AND ANGUS MACGILLIVRAY, M.D., D.SC.

TRACHOMA AND ITS TREATMENT.

DR. L. WEBSTER FOX of Philadelphia (*Ophthalmology*, 1915), in a paper read before the Philadelphia County Medical Society in February of last year, states that the widespread interest now taken by the medical profession in trying to aid ophthalmic surgeons in their attempts to eradicate this terrible scourge, is his excuse for again bringing the topic to the attention of the society.

The term trachoma, which signifies a roughness of the conjunctiva, has been in use since the time of Hippocrates (460-377 B.C.), by whom this form of ophthalmia was described; but in Egypt, as Boldt has said, "Trachoma is as old as the Nile, the simoom, and the desert."

From the Papyrus of Ebers, discovered at Thebes in 1872, and written a thousand years before the time of Hippocrates, it is evident that even then, this and other diseases of the eye were studied and prescribed for.

In Egypt trachoma is ubiquitous, and affects more than 90 per cent. of the population. It also prevails in Arabia, Armenia, and Syria; and the immigrants from these and adjacent countries supply the cases of trachoma that, upon their arrival here, have, under existing regulations, to be deported from the United States.

Trachoma, or granular conjunctivitis, as known in America, is a contagious specific disease of the palpebral conjunctiva, characterised by increased thickening and vascularity, and by the formation of granular elevations of lymphoid infiltration, which undergo ulceration and subsequent cicatrisation. The recent studies of Halberstadter and Prowaczek seem, however, to have led to the discovery of so-called "trachoma bodies," which are believed to occupy a position, morphologically, between bacteria and protozoa.

The disease is most frequently found among the inhabitants of barracks, asylums, almshouses, and other places in which people are prone to be careless in the use of towels, handkerchiefs, and similar personal articles. As already stated, it is particularly common among immigrants, especially the Armenians, Syrians, and Russian Jews; but the American Indian is extremely susceptible to it.

According to Dr. John M'Mullen, of Lexington, Kentucky, recent investigations made by the United States Public Health Service show the existence in the United States of some conditions in regard to the prevalence and spread of this disease that are so alarming that they should sound a note of warning to all public health officials. These trachoma investigations were commenced about two years ago, and are still being conducted. Thousands of cases have been found in various sections of the country, but the heaviest infections have been discovered among the Indians and in some parts of the Appalachian Mountains. On some of the Indian reservations more than 50 per cent. were found to be suffering from this disease. More or less trachoma exists among the inhabitants of the Appalachian Mountains ranges, from the Carolinas to the Virginias, inclusive, with the heaviest infection centring in Eastern Kentucky and the contiguous counties of Virginia and West Virginia. According to the last report of the Commissioner of Indian Affairs, there are four thousand Comanche, Kiowa, and Apache Indians on the Kiowa Reservation, in Oklahoma, of whom not less than 55 per cent. are affected with the awful scourge of trachoma.

The disease is usually chronic; but there may occasionally be observed acute cases in which there are marked inflammatory symptoms and profuse purulent secretions, the severity of certain attacks being probably due to a concomitant acute conjunctivitis, or to an exacerbation of the symptoms, as the result of freshly developing follicles. These cases resemble purulent conjunctivitis; and very often the diagnosis must be withheld until the granulations are visible.

The disease is usually bilateral. In many cases its initial course is so insidious that the patient is not aware of its presence until it is well developed. The changes in the palpebral conjunctiva are slowly progressive. The membrane becomes thickened, vascular, and roughened by firm hemispherical elevations. This change usually takes place first in the upper lid, but later extends to the lower lid, giving rise to the growth of a considerable amount of organised new tissue in the deeper parts of the conjunctiva. Externally, œdema and vascularity of the lids are noticeable; while the ocular conjunctiva is congested and has an angry appearance. Slight photophobia and lacrymation are present; and a "gritty feeling," due to a roughened condition of the palpebral conjunctiva, is experienced by the patient.

In the early stages of the affection, if the lids be everted, the surface will be found covered with small granular bodies, which look very much like small sago grains. These are either scattered or massed together (follicular trachoma), and constitute the chief feature of the clinical picture. In the later stages this tissue is partly absorbed, and partly converted into a dense tendinous scar-tissue which, by its shrinking, frequently causes deformities of the lid. In all cases the eyeball is greatly irritated by the roughened surface, which produces a host of resultant troubles by mere friction. In many cases the inflammation is intense, and the discharge profuse. The cornea becomes involved early, and only prompt and vigorous treatment can prevent complete blindness.

A mixed infection may exist with the trachomatous process. Koch (*Wien. med. Wochenschr.*, 1883) found in Egypt both the gonococcus and what is now classified as the Koch-Weeks bacillus in the discharge from the conjunctiva of trachoma cases. The trachoma granules, in some cases, are deeply imbedded beneath the thickened, opaque conjunctiva, or in the masses of fibrous tissue that have developed on the lid, so that they can hardly be seen, if at all (papillary trachoma). The lid becomes swollen and droops, by reason of its increased weight, and the palpebral fissure becomes more narrow than normal. There is always a muco-purulent discharge, considerable in amount in acute cases, and scanty in those of long duration.

One troublesome sequel of trachoma is constituted by the cicatrices following the absorption of the granulation tissue, which may so "pucker" the conjunctiva as to draw the edge of the lid inward, producing trichiasis or entropion. In either case the resulting friction is greater than that directly due to the trachoma. The most frequent and most troublesome sequel of trachoma is pannus. Corneal ulcer, staphyloma, and symblepharon may also occur.

Various medicaments of an astringent character have long been employed in the treatment of this condition, such as nitrate of silver, copper sulphate, trichloracetic acid and orthochlorphenol (5 per cent. solution). Dr. C. Montagu Harston advocates solid carbon dioxide snow. In the milder forms of the disease happy results have been achieved by their continued application for a long period of time. It is sometimes possible to hasten this cure by everting the lid and excising the tissue down to the basement membrane with the scoop and scalpel. The tendency at the present day is to treat the chronic and obstinate cases by means of some surgical method that will bring about a rapid disappearance of the granulations and correct the distorted condition of the eyelids.

The principal object of Dr. Fox's paper is to describe the grattage operation. Two instruments have been especially devised for this procedure—a forceps and a scarificator. Any operation that has for its aim the destruction of the granulations must be commenced by a complete exposure of the palpebral conjunctivæ, including the retrotarsal folds and the cul-de-sac of the upper lid. This is best effected by means of the Darier forceps, an instrument that resembles a catch-dressing forceps, with three pins on the male blade. When the instrument is closed, the pins pass through corresponding openings in the opposing, or female, blade; and their points, piercing the eyelids, prevent slipping when complete eversion of the lids is made. The second instrument is a tri-bladed scarificator, or scalpel. The outside blades are jointed so that they may be easily turned when being cleaned. They are securely held in place within a platinum handle, and make parallel incisions. The operation is performed in the following manner:—

"The upper eyelid is grasped along its margin by means of Darier's forceps and, the edge being turned upon itself, the lid is everted until the retrotarsal fold is brought into view. A horn spatula should be inserted beneath the lid, to protect the cornea. The exposed conjunctiva is first thoroughly scarified with the three-bladed scalpel. The granular tissue is then scrubbed with a tooth-brush that has been steeped in a corrosive-sublimate solution (1 : 1000) just before being used. Immediately after scrubbing, the part is washed with a solution of the same strength. Another portion of the lid is then unrolled and the scarifying, scrubbing, and washing are repeated. This process is continued until the whole palpebral conjunctiva has been subjected to the treatment. If the lower lid is involved in the trachomatous process, it should be treated in exactly the same way.

"In the soft, gelatinous variety of granulations the writer has found that, by using ordinary gauze sponges, he has been able to smooth down the elevations and clean off the conjunctiva of both lids, leaving it perfectly smooth; so that within a few days all evidences of trachoma have disappeared. Especial care, however, has been observed to reach the fornix and every other portion of the diseased surface. In addition to cold compresses, an antiphlogistic is applied, and within 24 hours the lids can usually be opened without pain or annoyance. It is surprising how little reaction ensues upon this apparently harsh procedure. (Dr. Coover uses sandpaper soaked in sublimate solution, with much success.")

If the operation as described is promptly carried out, Dr. Fox states that the results are exceedingly gratifying; and it rarely happens that it must be repeated, thus proving that reinfection seldom takes place. The writer feels convinced that the disease is a curable one; and that, therefore, a modification in the immigration laws should be made to cover certain cases. For instance, if the father and mother are free from trachoma, and possibly only one child of the family is attacked, the child should not be deported, as the present law demands; because, with proper treatment, the disease can be eradicated.

The French method of treatment for trachoma consists in everting the eyelids 24 hours subsequent to the operation, and again applying the corrosive-sublimate solution (1 : 1000) to the conjunctival surface.

This procedure is very painful, and in Dr. Fox's opinion is quite unnecessary.

Frequently, a Burow's operation, which consists in cutting through the cartilage on the conjunctival surface from the inner to the outer canthus, when performed at the same time as the grattage, aids the latter by expanding the eyelids. In trachoma the swollen condition of the conjunctiva and the cartilage prevents the free movement of the eyeball and, by exerting pressure, produces pain and assists in the formation of pannus. Slitting the cartilage by Burow's method relieves this pressure and obviates the subsequent danger.

"Extirpation of the tarsus, as recommended by Kuhnt, is exceedingly beneficial in cases of chronic trachoma associated with great infiltration and thickening of the tarsus. Electrolysis and radium treatment have proved to be beneficial; at least, sufficiently so to afford encouragement to several practitioners."

Dr. Webster Fox witnessed the performance of the grattage operation by Dr. Darier while in Paris, and thus became conversant with its technique. Since that time he has performed the modified operation, as above described, in many hundreds of cases, especially among the Indian children of the Carlisle School, with exceedingly gratifying results. In chronic trachoma associated with great infiltration and thickening of the tarsus, splendid results are obtained by extirpating the whole of the cartilage, together with its conjunctival covering, which has been adopted by the author for the last two or three years.

The incision starts along the ciliary border, two lines from it, and extends through the cartilage, and is completed by following the curved outline (apex) of the same. The tarsus may then be removed easily by peeling it off from the underlying tissue—the orbicularis muscle. The eyelid may then be allowed to take care of itself. No serious complications have arisen from this shortening of the under surface of the eyelid. A few granulations appear, in some cases, along the ciliary margin of the cicatricial line, but these may be readily removed.

A. MacG.

THERAPEUTICS.

UNDER THE CHARGE OF

JOHN EASON, M.D.

Treatment of Cerebro-spinal Meningitis.

In opening a discussion on the treatment of cerebro-spinal meningitis at a recent meeting of the Royal Society of Medicine, Sir William Osler (*Proc. Roy. Soc. Med.*, vol. ix. No. 1) emphasises the urgency for discussing the prophylatic measures and the serum treatment. Other aspects of the therapeutics were, in comparison, subsidiary and unimportant. In dealing with prophylaxis he recognised a certain value in the new conception of the disease propounded by Dopter, viz. the epidemic is in the carrier; the meningitis is an incident. The germ is ubiquitous, harboured by many who are not ill and who never have any symptoms, producing in others a mild catarrh, and only a few reaching the meninges. We cannot always recognise a catarrhal or naso-pharyngeal stage of the disease, and the germs may be present in a healthy-looking throat of a serious case. The concentration of human beings, particularly of young recruits, in camps appears to be the most important single factor. Seasonal influence is next in importance. Fatigue lowers the resistance; wet and cold and excess of tobacco favour pharyngeal catarrh; huts or tents are overcrowded, the nights are cold, the blankets thin, the tents are laced up tightly and the air becomes foul. A carrier does the rest. During the winter medical officers in charge of camps should (1) guard the young soldier specially against over-fatigue; (2) reduce to a minimum the circumstances which favour naso-pharyngeal catarrh; and (3) make a combination possible of good ventilation of the sleeping quarters with comfortable warmth of the men. These are worth fighting for to save, possibly, the lives of 500 young men.

The prophylactic use of anti-meningitic serum is still on trial. With our present knowledge a specific therapy combined with lumbar puncture is the rational treatment, combating with the one the sepsis, and with the other the pressure effects of the local exudates. On the value of the specific therapy there is grave difference of opinion, but all are agreed upon the value of withdrawal of fluid from the spinal meninges.

The serum has a specific influence on the meningococci in the spinal canal, partly by a direct bactericidal action, partly by promoting phagocytosis; possibly, too, there is an anti-endotoxic action. Sophian's statistics—if figures are worth anything—show an overwhelmingly strong case for specific therapy. The results obtained in the recent epidemic among the Canadian forces at Bedford under the capable charge of Captain Ellis have been disappointing. There were forty cases, with twenty-six deaths—a mortality of 63 per cent. The sera used were from Burroughs Wellcome & Co., the Lister Institute, Mulford, and Parke, Davis & Co.

Ellis' report to Osler goes on to say: "A few of the patients treated with Mulford's serum suggested that some improvement had taken place, but this was hardly striking enough to justify its use. No benefit was seen with any of the other sera employed. In one patient meningococci were isolated from the spinal fluid two and a half months after the onset of the illness. During this period the patient had been given more than twenty intra-spinal injections, comprising all of the above kinds of serum." As Osler says, this is a bad record for the treatment coming from the hands of an expert in intra-spinal methods. Nor were the results any better at Haslar or Shorncliffe. The mortality was 52 per cent., and the use of the serum was abandoned after the occurrence of eight deaths among twelve cases. Osler believes the reason for this widespread failure is that the sera employed have been inert. Moreover, we do not know in how many cases the para-meningococcus was present. Minor contributory causes to the failure have been insufficient dosage, failure to treat cases early, and imperfect technique.

Osler suggests that the investigation of sera should be put into the hands of experts by the War Office, so that we could be certain those used corresponded to the strains of organisms present in the prevailing epidemic.

Dr. Gardner Robb of Belfast, who has probably the largest experience of the serum treatment, states that in the 1907 epidemic the death-rate fell at once to one-third of what it had been before using the sera. During the latter period the death-rate remained at the initial figure among those who could not obtain the serum. The number of cases to which he had given the serum intra-spinally and reported on previously (February 1915) was 120, and the mortality had been under 24 per cent. Those were gross mortality results which could be compared with the gross mortality rates—60-80 per cent.—in outbreaks in America and Europe before the introduction of intra-spinal injections of serum.

Where there was a reappearance of cases last winter he had fully expected that they might look forward to getting even better results, as cases were likely to be sent to hospital without delay; but unfortunately the results had not been so good.

In a new series of 100 cases the case mortality was 36 per cent. Robb does not believe the explanation to be that the cases were of a more virulent type, although, so far as he had been able to ascertain, no case occurring in the north of Ireland during the past winter and spring which was treated without serum had recovered.

In the discussion at the Epidemiological Society in February 1915, the general impression appears to have been that the resistance to the serum treatment shown by many of the cases then occurring was to be accounted for by difference in the strain—strains not provided for in the polyvalent serum available. Robb had several cases in the recent series whose behaviour towards adequate serum treatment was different to any he had met with in his former experience in the use of the serum. His earlier experience had been that if a patient lived for ten days or a fortnight recovery took place. In the recent series of 100 cases that did not hold good. He obtained specimen cultures of the organisms from cases in various places, and received others from the Lister Institute, from Birmingham, Liverpool, and Dublin, and took them over to New York for comparison with the strains being used in the preparation of the serum. These had shown no marked differences when compared with those at the Rockefeller Institute. Some of them had not agglutinated with the serum in quite so high dilutions as those in use there, and these have been used in the preparation of the serum now. A fuller report from the Institute has not yet been received. Robb believes that the serum recently available did not possess as high a standard of immunity value as formerly. Owing to the sudden great demand, the available horses were bled as frequently as possible, and the immunity value dropped very seriously. He thought that therein lay the true reason of the somewhat disappointing results sometimes obtained from its use. Steps have been taken to correct the deficiency in quantity and quality of the serum, and that now available, judged by all the laboratory tests, was of a higher value than any formerly in use. Robb brought back with him a supply of this new serum, and so far he had treated eight acute cases with it; in these there had been one death.

Robb is unable to accept Sophian's recommendations that continuous blood-pressure readings should be taken during lumbar puncture and the injection of the serum, and that general anæsthetics should not be given.

Robb always uses a general anæsthetic unless the patient is unconscious or there seems to be some other contra-indication. He believes these patients give no more anxiety to the anæsthetist than any others. He has not obtained any success with "water anæsthesia," as recommended by Sophian.

In some cases he had tried taking continuous blood-pressure readings, but did not think he received any help from them. With general anæsthesia the variations in pressure did not seem to be marked either during the withdrawal of fluid or the injection of the serum. The withdrawal of fluid often gave rise to very severe pain, and the injection at times gave rise to pain which might be almost unbearable, and the explanation of the alarming variations in blood-pressure was, he thought, to be found in the sudden severe pain set up. With general anæsthesia this was avoided. Sophian controlled the dose by the blood-pressure readings, and found that much smaller doses of serum appeared to be the safer course. He recommended that in young children the dose should be 3 c.c. to 12 c.c. In young children Dr. Robb had always given the full dose of 20 c.c. and often more, generally under complete anæsthesia, and the results had been quite good. One child of six months had received six injections of 20 c.c. and one of 30 c.c. It was not a mild case, but recovery took place.

The best dosage for any age had not as yet been worked out. He gave full doses, frequently repeated, until improvement was shown.

There are no means of estimating the risk of withholding the serum in cases not distinctly improving. He had no doubt that the serum now available was of much higher value than much of that which reached this country from America last winter.

Surgeon-General H. D. Rolleston employed various forms of treatment for 163 cases in the Royal Navy from the beginning of the war to 31st July 1915. He said the most noticeable point was the failure of intrathecal injection of anti-meningococcic serum. The sources of the serum were Burroughs Wellcome & Co., the Lister Institute, and Mulford. In 105 cases the treatment consisted of lumbar puncture and intrathecal injection of the serum, either alone (62 cases), or with the addition of vaccines, soamin, or hexamine (43 cases). Of these 105 cases 61 per cent. died. Of the 62 cases above referred to 69·4 per cent. died; of the 43 cases with combined treatment 46·5 per cent. were fatal. Those treated solely by the intrathecal injection of serum and lumbar puncture had a higher death-rate than that of the whole series of 163 cases, viz. 54·6 per cent. The failure of the serum to reduce the mortality was not due to its being given too late, for in 66·7 per cent. of the 105 cases it was administered within the first three days of the disease. In a very few instances was there the critical improvement which was said to occur in about 30 per cent. of the cases that recovered (Flexner). Possibly the meningococci were "fast" to the action of the serum or were para-meningococci. In consequence of its apparent inertness, intrathecal injection of serum was in the latter part of the epidemic largely replaced by or combined with other methods, such as the intra-muscular injection of soamin. It was true that the mortality naturally diminished towards the end of epidemics; but this did not entirely explain why the results of intrathecal injection of serum compared so badly with those of almost all other methods and combinations of methods; for up to the end of February there were 90 cases with a mortality of 57 per cent., whereas from the beginning of March to the end of July there were 80 cases with a mortality of 47 per cent. There was a remarkable contrast between the effects of intra-muscular injection of soamin—(*a*) when given alone to 21 cases, with a mortality of 33·3 per cent., and (*b*) when combined with intrathecal injection of serum in 18 cases, with a mortality of 61 per cent. In 13 cases lumbar puncture alone was performed with a mortality of 31 per cent.

Alarming symptoms directly after the intrathecal injections occurred in two cases only, thus showing that the gravity method of administration, which was not in vogue in the Royal Navy, was hardly necessary provided due care was taken. No severe anaphylactic symptoms were recorded. An autogenous vaccine was given in 16 cases by Fleet-Surgeon H. C. Whiteside at Plymouth, where the mortality (36·7 per cent.) was remarkably low. The 16 cases all received other specific remedies (in 11 cases intrathecal injections of serum) and showed the very low mortality of 25 per cent.

Hexamine was given by the mouth in seven cases, but as it did not appear to have any effect clinically, it was soon abandoned. Dr. Michael Foster thought a serious omission consisted in not doing lumbar puncture oftener and over a sufficiently long time in several of his cases.

NEW BOOKS.

Fibrositis, so-called Chronic Rheumatism. By LL. JONES LLEWELLYN and A. BASSETT JONES. Pp. xxvii. + 693. With 142 Illustrations. London: William Heinemann. 1915. Price 25s. net.

THE plea of the authors of this work to substitute the term "fibrositis" for that of chronic rheumatism and so to give to the affection "a local habitation and a name" appears to us to be well supported by the evidence they adduce.

That the essential pathological change, in those varieties of chronic rheumatism with which they deal, is an inflammation or hyperplasia of the white connective tissues is no new discovery. Near the beginning of last century Dr. Craigie (in the pages of this *Journal*) urged this view; and, although it was for long lost sight of, towards the end of the century it was revived by Gowers, who applied the name "fibrositis" to certain forms of the disease. Professor Stockman of Glasgow has also contributed to our knowledge of the subject.

Three forms of "fibrositis" come within the purview of the authors: infective or toxic, traumatic, and static. The most potent factor in the causation of the toxic form, which includes articular, muscular, and neuralgic varieties, appears to be gout. Traumatic fibrositis, of which the most important variety is traumatic lumbago, is chiefly related to strain or rupture of muscles. The static form is chiefly manifested in the villous changes which occur in joints and in sacro-iliac relaxation.

After a short but interesting historical summary, the authors discuss very fully each of these varieties. Consideration of space forbids that we should follow them through all the subdivisions of the subject, but the work is one which will well repay careful study.

The literary style tends to be prolix, and the authors show a marked preference for long and archaic words and rolling periods where plain words would have better conveyed their meaning. The illustrations, a number of which are in colour, are excellent, and the publisher's share in the production of the volume leaves nothing to be desired. The absence of a bibliography, or even of a reference to the original papers from which the authors quote, is to be regretted in a work of such dimensions and authority.

Radium, X-Rays, and the Living Cell, with Physical Introduction. By HECTOR A. COLWELL, M.B.(London), D.P.H.(Oxford), and SIDNEY RUSS, D.Sc.(London). Pp. 61. With 309 Illustrations. G. Bell & Sons, Ltd. Price 12s. 6d.

In their preface the authors state that their object is to describe some of the main experimental facts which have been established as to the effects that the X-rays and the rays from radium have upon living cells. In order to make the subject generally intelligible, a description of the properties of these radiations was necessary, and Part I. is designed, not only to provide information in this respect, but to meet the needs of those who approach the subject with a view to experimental investigation. A large amount of interest centres around the action which the rays have upon malignant cells, and some of the most detailed studies have been made by investigators in this connection. The subject is not approached from the clinical aspect, but data have frequently been selected from the details of clinical observations, when these have borne upon the subject-matter in question. This praiseworthy object has, we think, from a careful perusal of their book, been fully attained. Their volume is replete with information of the highest value both to those who are engaged in investigating the biological properties of the X-rays and of radium, and to those who are using the radiations in the treatment of disease. The book is well printed in large type, and there are a number of excellent illustrations likely to prove of value. There are also many useful tables, and a fairly complete bibliography. There are chapters on the actions of the radiations on certain kinds of animal life, on developing forms, seeds, bacteria, and the human and animal tissues. Space forbids more than a mention of these, but it is curious to learn that no observed histological alterations in the thyroid gland can be traced to the application of X-rays. No changes, macroscopic or microscopic, seem to be produced, even though large doses, ranging from 12 X to 36 X were given. In spite of that the clinical effects in cases of pathological alterations in the thyroid are often marked. The effects of radium rays on the thyroid are not referred to, although its beneficial clinical effects are indisputable. In the thymus retrogressive changes follow tha application even of a single moderate dose of X-rays, but these are followed by regeneration. Single large doses or repeated smaller ones are often followed by permanent atrophy.

Aubertin and Beaujard exposed guinea-pigs to moderate doses of X-rays, the exposure, however, lasting forty to sixty minutes, in order to ascertain whether any blood changes were occasioned. They observed an initial sharp rise followed by a pronounced fall in the number of leucocytes. Such experiments, which have been generally confirmed by others, are suggestive in view of the beneficial effects produced in man by radiotherapy in cases of leukæmia. The blood of radiologists may suffer as the result of chronic slight exposures to X-rays. It is important to take note of the markedly destructive action that X-rays have on the gastro-intestinal mucosa. Irradiation of the abdominal region in dogs by filtered X-rays produced lesions in some cases rapidly fatal, in others of a severe and permanent character. There is a chapter on the action of radium and the X-rays on malignant cells *in vitro*, from which it appears that tumour cells, if radiated by radium outside the animal, may be given an accurately measured quantity of beta-rays, so that when the cells are reinoculated they will not produce growing tumours. Such irradiated tumour cells can in certain cases produce an immune condition in the animal into which they are inoculated. But we have said enough to show the scope of this valuable work, and we congratulate the authors upon the success which has attended their efforts.

Modern Bone-setting for the Medical Profession. By Frank Romer, M.R.C.S.(Eng.), L.R.C.P.(Lond.). Pp. xi. + 77. With 18 Illustrations. London: Wm. Heinemann. 1915. Price 5s. net.

The medical profession has never looked with favourable eyes on the art of bone-setting, and the title of this small work may at first sight tend to repel the professional reader. In this case, however, there is not much in the name, as the author's plea is merely for a rational and scientific use of means to break down adhesions following injuries or slight inflammation in and around joints and tendon sheaths. It cannot be denied that the "bone-setter" frequently obtains results which put to shame the previous efforts of the legalised medical practitioner, but in order to do so he must subject his patients to risks which would give pause to the trained doctor. It is also true that while the successes of the bone-setter are proclaimed from the house-tops, his failures are suppressed alike by himself and his victims, and are oftenest revealed in the out-patient departments of our public hospitals.

It was Sir James Paget who advised that the medical profession should "copy what is good in the practice of bone-setters," and Mr. Romer furnishes us with an excellent guide as to how to do this. The principles of the art are clearly laid down in one section, the necessary manipulations in another, and the exercises in after-treatment in a third. Due acknowledgment is made of the work of Dr. Wharton Hood in this "neglected corner of the domain of surgery," and we can heartily commend this book to our readers. An excellent series of photographs illustrates the "grips" and movements appropriate to the different lesions which may be legitimately dealt with by forcible manipulation.

Fractures and Dislocations. By Miller E. Preston, A.B., M.D. Pp. xxv. + 813. With 860 Illustrations. London: Henry Kimpton. 1915. Price 31s. 6d. net.

Dr Preston has embodied the results of a wide clinical experience in his text-book on fractures and dislocations with the intention of "providing the reader with a working knowledge of the subject in as few words as possible." He discusses the fractures and dislocations of each region systematically, prefacing his description of the various injuries with a brief account of the anatomy of the part concerned, and he has endeavoured to present his subject graphically by introducing large numbers of illustrations showing the clinical features and X-ray appearances of typical injuries.

The preparation of a book such as this involves a large amount of labour, and Dr. Preston is to be congratulated on having successfully accomplished his task. His descriptions are full and accurate and his teaching sound, the methods of treatment advocated being, for the most part, those generally approved at the present day. He has few special methods of his own to put before the reader, and is neither a very ardent advocate nor an uncompromising opponent of the operative treatment of simple fractures. An unusual feature of the book is the inclusion in it of the consideration of fractures of the skull with the accompanying injuries to the brain, along with a chapter on scalp wounds, and special attention may be directed to the section on fractures of the lower jaw, in which a number of special dental splints are described and figured.

In appraising the book as a whole we are inclined to quote Dr. Preston's own words against him. He aims at presenting his subject in "as few words as possible," and yet we feel that he would have given us a more readable and more valuable book had he condensed his descriptions and brought out more clearly the salient features of injuries and the essential points in treatment. His style tends to be too diffuse and he is not dogmatic enough in his teaching, so that the descriptions he gives often fail to leave a clear enough impression on the mind of the reader. Many of the 860 illustrations are instructive and bring out clearly what they are intended to show, but not a few fail seriously in this respect. In particular, some of the reproductions of radiographs are blurred and indistinct, such as those on p. 536, and should be sharpened up or replaced by clear diagrams in future editions. With judicious condensation, and care that none but really graphic illustrations are inserted, future editions of Dr. Preston's book may well fill a useful place as a text-book on fractures and dislocations.

Sleeping Sickness: A Record of Four Years' War against it in the Island of Principe. By B. F. BRUTO DA COSTA, J. F. SANT ANNA, A. C. DOS SANTOS, and M. G. DE ARAUJO ALVARES. Translated by J. A. WYLLIE, F.R.G.S., Lieutenant-Colonel, Indian Army, retired. Pp. xii. + 260. With 73 Illustrations. London: Baillière, Tindall & Cox. 1916. Price 7s. 6d. net.

WHILE this book provides interesting reading for medical men, entomologists, and others concerned in the prevention of tropical diseases, it also commends itself to students of international politics.

In a note attached, the translator shows that the desire of Germany "to destroy Principe as a colony on the pretext that the presence of sleeping sickness in the island rendered it a focus of infection and a standing menace to the African Continent" was simply a phase in the German plan for the acquisition of a continuous coast-line from the Kamerun to German South-West Africa.

In addition, he points out that the agitation set up in this country some years ago to blacken the reputation of the Portuguese and Belgians in Africa, especially in connection with the so-called "Congo atrocities," was worked by a band of "professional humanitarians," ostensibly on philanthropic grounds, but really with the object of favouring German ambitions for the formation of a hinterland extending from the west coast to their East African colony. Fortunately the Foreign Office saw through the whole scheme, and prevented unfair pressure on Portugal.

To show the thorough and scientific methods adopted by the Portuguese to eradicate sleeping sickness from Principe, and thus nullify the German charge against it of being a focus of infection, is the object of the book under notice.

The measures adopted and carried out by an efficient sanitary brigade resulted, as shown in a report for 1914, in the extermination of all the tsetse flies in the island, and consequently the eradication of sleeping sickness.

These measures included not only clearing jungles, reclamation of swamps, the destruction of wild animals, capture of glossina by the use of a viscid paste, but even the protection of domestic animals from the bites of the flies by the use of wire gauze netting. The report is an object-lesson to all engaged in preventive sanitary work in the tropics.

The numerous photographs are well reproduced and the coloured plates are excellent.

The authors are to be congratulated on the excellent results they have obtained by much strenuous work, and the thanks of all interested in tropical affairs are due to Colonel Wyllie for presenting such a readable translation of the record. It should be in the hands of all medical men, civil administrators, and others engaged in the campaign against sleeping sickness.

NEW EDITIONS.

Text-Book of Medical Chemistry and Toxicology. By James W. Holland, A.M., M.D., Sc.D., Emeritus-Professor of Medical Chemistry and Toxicology, Philadelphia. Pp. 678. Fully Illustrated. Fourth Edition. Philadelphia and London: W. B. Saunders Co. 1915.

Though this work professes to be a guide to medical chemistry and toxicology, it really attempts, in less than 700 pages, to teach the essentials of general chemistry and of chemical physics as well. The result is unsatisfactory, although the book has reached a fourth edition. Viewed as a general text-book it lacks proportion; viewed as an introduction to medical chemistry and toxicology it is encumbered with much material irrelevant to its purpose, and which any ordinary student should have already mastered when engaged in his systematic chemical studies, though it is only fair to state that the author assumes "that the medical student is a beginner in chemistry, and as yet unfitted to appreciate the reasons for arranging the elements according to the natural or scientific classification." To such a reader most of the toxicology would be out of place.

The book begins with the physical data required for general chemistry—meteorology, heat, electricity, and light. This is followed by the chemistry of the non-metallic and metallic elements, by organic and physiological chemistry, and by sections on metabolism and clinical chemistry. The physical introduction lacks accuracy in certain parts—for example, it is not unreasonable to expect that the author should know that, so long ago as 1913, it had been demonstrated not only that X-rays and γ-rays are of the nature of light waves, but also that their wave-lengths had been determined with considerable accuracy. Instead of this we are presented with the discredited theory that "the X-rays of Röntgen issuing from a Crookes' tube are probably a series of short pulses in the ether sent out at irregular intervals."

The inorganic chemistry suffers from the disproportionate consideration of certain elements at the expense of others. The author's purpose is clear enough; it is simply to assign to each an amount of space dependent on its toxicological or physiological importance, thus subordinating chemical considerations to others relating to the student's future profession. All one can say is, that the results are highly unsatisfactory from whatever standpoint they are considered.

The portion of the book devoted to organic chemistry is better systematised and should prove useful for reference; but when one examines the various clinical tests which are proposed in the closing sections of the book, one feels that many of them have been introduced without much critical appreciation of their relative merits and failings.

In the toxicological sections which follow the paragraphs on the chemistry of the various substances the author is evidently more at home. The notes on symptoms, post-mortem appearances, and chemical identification tests are clear and succinct, and if they, and some parts of the organic chemistry sected, could be filtered off from the rest of the book, they would prove distinctly useful.

For the rest, the book is well printed and tolerably illustrated.

NOTES ON BOOKS.

We have received an elegantly furnished volume containing a number of memorial addresses delivered on the occasion of the death of Dr. S. Weir Mitchell in 1914. These bear ample evidence to the affection and veneration with which Weir Mitchell was held by those with whom he lived and worked in Philadelphia, and stimulate a desire for a complete biography of a physician and man of letters whose fame is world-wide.

Transactions, Reports, etc.—The *St. Thomas' Hospital Reports*, vol. xlii. (J. & A. Churchill; price 8s. 6d. net) contains the statistical material compiled by the registrars of the several departments of the hospital for the year 1913. We are tempted to wonder if the enormous amount of labour expended in the preparation of such elaborate tables could not be more profitably employed, and if the expense of publication is justified.

Transactions of the American Urological Association, vols. viii. and ix., 1914-1915 (printed for the Association). The yearly record of highly specialised work contained in the reports of the annual meetings of the American Urological Association is of great value to all who are interested in this branch of surgery. The individual papers are concise and authoritative, and the verbatim reports of the discussions add greatly to their educational value. In the most recent volume the subject of tumours of the bladder is very fully dealt with in all its aspects, but particularly with regard to the intravesical methods of treatment by electric currents.

ANALYTICAL REPORTS.

TABLOID SODIUM ACID SULPHATE FOR THE PURIFICATION OF DRINKING WATER.

(BURROUGHS WELLCOME & CO.)

THE importance of a pure supply of drinking water to an army in the field is one of the first considerations of a military staff, and excellent means have been devised for sterilising water on a large scale, with the most beneficial results on the health of the troops. It is impossible, however, to ensure that individual soldiers shall not fill their water-bottles on occasion from unauthorised sources of supply. To minimise the risks arising from this practice, Messrs. Burroughs Wellcome & Co. have introduced a preparation of acid sodium sulphate in "tabloid" form, which renders water sufficiently pure for all practical purposes. Sodium bisulphate when dissolved in water yields 40 per cent. of its weight of sulphuric acid. The addition of one tabloid sodium acid sulphate product to a pint of water, or two products to the contents of a soldier's water-bottle (1¾ pints) will yield sufficient free acid to render harmless within the space of half an hour most of the pathogenic bacteria contained therein. When the "tabloid" products are issued to troops, each soldier is instructed to add a couple to his water-bottle when refilling, and not to drink therefrom for at least half an hour. The slightly acid taste imparted to the water is not disagreeable, and is largely masked by the flavour of the sweetened sodium acid sulphate. Water so treated tastes not unlike lemonade, and no difficulty is experienced in inducing the soldiers to make use of the products.

"Tabloid" sodium acid sulphate should not be used with water-bottles made of iron, nickel, german-silver, white metal, Britannia metal, or any alloy of copper. The most suitable metal for the purpose is aluminium.

"SEMPROLIN" BRAND OF PETROLEUM EMULSION.

(WM. BROWNING & CO.)

We have received from Messrs. Browning & Co. samples of their new preparation of petroleum emulsion, issued under the name of "Semprolin." It is prepared from pure Russian petroleum, and forms a palatable creamy emulsion.

The semprolin emulsion may be obtained combined with salol (5 grains to each tablespoonful), phenolphthalein (2 grains to the tablespoonful), or iron (5 grains of ferri et ammon. cit. to the tablespoonful).

GLUTIODIN. MELARGEN.

(MELLINS' PHARMACY, LONDON.)

The makers have forwarded for our inspection samples of these two preparations, both of which, it may be noted, are British-made products designed to supersede similar preparations hitherto imported from abroad.

GLUTIODIN is a pure vegetable protein, combined with 10 per cent. iodine.

The combination is a direct one, and no inorganic iodide or iodate is present. Glutiodin is a light powder, almost tasteless, and sparingly soluble in ordinary media. Like other organic compounds of iodine, it may be administered without giving rise to iodism, and has been found useful in asthma, syphilis, and arteriosclerosis. The iodine is slowly liberated in the system, its maximum elimination occurring only after twelve hours have elapsed. Glutiodin is supplied both in powder and in 0·5 grain tablets.

MELARGEN is an organic compound of silver, intended for use as a lotion, injection, or ointment in ophthalmology, gynecology, etc. The strengths of solutions vary, according to circumstances, from 0·25 per cent. to 10 per cent. Solutions should be kept from light, and should not be boiled. In solution it has the characteristics of a colloid, and penetrates mucous membranes deeply. It does not coagulate on boiling, nor does it yield precipitates with chlorides or any of the usual reagents for the silver ion.

FORTHCOMING PUBLICATIONS.

The following New Books and New Editions are announced:—

MESSRS. H. K. LEWIS & CO., LTD.

Localisation by Röntgen Rays and Stereoscopy, by Sir James Mackenzie Davidson. *The Pathology of Tumours*, by Dr. E. H. Kettle. A new volume of essays, by Dr. T. B. Scott, entitled *Modern Medicine and Some Modern Remedies*, to which Sir Lauder Brunton has contributed a preface. *Notes on Galvanism and Faradism*, by Dr. E. M. Magill, intended for masseuses and those employed in the practical administration of electrical treatment. *The Adolescent Period; its Features and Management*, by Dr. Louis Starr. A new (4th) edition of *Mentally Deficient Children*, by Dr. G. E. Shuttleworth and Dr. W. A. Potts. A new (7th) edition of *Gould's Pocket Medical Dictionary*. A seventh edition of Binnie's *Operative Surgery*. A new edition of Dr. E. M. Brockbank's *Practical Points in the Diagnosis and Treatment of Heart Disease.* A new book by Dr. Russ on a *New Treatment for Gonorrhœa.* A new edition of Dr. Herbert Tilley's *Diseases of the Nose and Throat.*

MESSRS. SMITH, ELDER & CO.

A new volume entitled *More Minor Horrors*, by Dr. A. E. Shipley. It is a sequel to the *Minor Horrors of War*, a third edition of which is now in the course of preparation.

MESSRS. CASSELL & CO., LTD.

A second edition of *Diseases of the Nose and Throat*, by Sir St. Clair Thomson.

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CAMBRIDGE UNIVERSITY PRESS.

The Journal of Cancer Research (quarterly), being the official organ of the American Association for Cancer Research. *The Journal of Immunology* (bi-monthly), edited by Arthur F. Coca.

BOOKS RECEIVED.

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TRANSACTIONS of the American Pediatric Society, 1915. Vol. XXVII.		—

EDINBURGH MEDICAL JOURNAL.

EDITORIAL NOTES.

Child Welfare.

ALTHOUGH the medical examination of school children has not perhaps done quite as much as was expected in the way of improving the health and physique of scholars, it has at least shown the direction in which further effort is required. As might have been anticipated, the seeds of ill-health are in many cases sown before school days, and preventive medicine must in future begin earlier—with the care of the expectant mother and new-born infant. The memorandum of the Local Government Board on Maternity Service and Child Welfare inaugurates the first systematic attempt to place the tentative efforts which have already been made in this direction on a wider basis. The Act of 1915 makes notification of births compulsory in Scotland, and thus for the first time provides the necessary data to work on: it also enables local authorities to make arrangements for expectant and nursing mothers, and children up to the age of five, whereafter the latter fall within the scope of the Education Acts.

A feature of the scheme is that it does not so far propose to erect a new set of institutions, but to utilise the many voluntary agencies which already exist—maternity and children's hospitals, infant clinics, dispensaries, and health visitors on the medical side; day nurseries, kindergartens, and schools for mothers on the educational. This sort of compromise between State and voluntary effort is a peculiarly national characteristic, and the supervision of the Board and local authorities, judiciously exercised, ought to diminish the amount of overlapping which at present goes on among the philanthropies at work in the field, and to render those which survive more efficient, by grants in aid, and otherwise.

So far as the mother of the future is concerned, the initial step is a purely educational one—the extension of the system of continuation classes on sick-nursing, care of children, and so on, under the School Board; next come prematernity care and medical advice; then the provision and supervision of registered midwives (under the recent

Act); and finally the schools for mothers worked in connection with the infant consultations.*

It is apparently contemplated that in some cases the schools for mothers, as well as the continuation classes, should be conducted with the co-operation of the educational authority, but we believe that it will prove that the informal instruction given to the women at the infant consultations, to which they bring their babes, will be both more helpful to them and better appreciated.

When we come to the question of conserving the health of the infants, there are greater difficulties. Health visitors have done an immense amount of good work, but it is not beside the mark to say that the defect of the present system is the lack of expert medical supervision and assistance. Visitors have been unable hitherto to get medical advice in a convenient way. Practically, when a visited baby is not thriving, all that is usually possible is to send it to a hospital or dispensary which has not even a casual relation with the general health service. In future, the health visitor ought to be in close touch with the infant consultation centre—the one is the complement of the other. All visited infants, whether well or ill, ought to be taken periodically to these centres, and the health visitors also ought to attend at the same time, both for educational reasons, and in order to see that the advice given is carried out at home by the mothers.

While in small towns such consultations will almost necessarily be general dispensaries for children under school age, in large cities this ought not to be the case. The infant consultation, properly so called, has a definite sphere of its own; it is a preventive agency, and thus deals not only with ailing but with healthy babies, and where ordinary dispensaries and children's hospitals exist, acute or accidental illnesses should be treated at these places, not at consultations. One strong reason (and there are others) for urging this is the importance of excluding from infant consultations infectious cases, comprising in this category the large group of infectious catarrhs, which are so serious in young infants. In fact, although the memorandum proposes to deal in these centres with children up to five, we believe that time will soon show the advisability of treating infants up to a year or eighteen months old as a class apart.

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* As is well known, we owe the name, as well as the idea, of infant consultations to France, but it is not so well known that in 1792 a Frenchman, Lepelletier Saint Fargeau, in his report (adopted by the Convention) on education, introduced the first system of free meals for necessitous children. "*L'enfant, s'il est pauvre, sera nourri par l'école méme. On ne verra plus ce spectacle impie d'un enfant qui vient à l'école grelottant et affamé.*" He proposed to meet the cost by the work of children capable of working, by the sums paid for education by parents in easy circumstances, and by a State subvention. Lepelletier was a magistrate under the old *régime*; he became a Jacobin and was one of the majority of the Convention who voted for the execution of Louis. On the same day (20th January 1793), on leaving the assembly, he was assassinated by Paris, a dependant of the Comte d'Artois.

In connection with these consultations it will be necessary to ensure in one way or another that a good milk supply is available, but it is to be hoped that they will nowhere be used to push any special method of feeding infants. As a matter of fact, while there are plenty of badly fed infants, no one with any knowledge of the subject would venture to assert that there is any "best" method of hand feeding, though the public are only too ready to believe an energetic faddist on this or any other branch of dietetics. It will be a great pity if any centre is discredited by exploiting the latest fashionable "milk."

In cities where there are medical schools the establishment of babies' hospitals, after the American fashion, is an innovation not likely to be long delayed. It will follow more general recognition of the fact that infants suffering from digestive diseases form a class by themselves, and cannot (contrary to popular belief) be treated as they ought to be treated in ordinary children's hospitals. A babies' hospital need not be very large, though it would need a relatively large nursing staff, and it would be of immense value from a scientific, educational, and social point of view.

Tuberculosis receives only cursory reference in the memorandum, but any scheme of child welfare must take this disease seriously into account, particularly in relation to the housing of young children in the same dwelling as an adult with open tuberculosis. In such circumstances the probability of infection is very great: in fact a definite history of exposure in this way often justifies a diagnosis of active tuberculosis in a baby, when the physical examination alone affords no grounds for such a suspicion. There ought, therefore, to be very close co-operation between the tuberculosis officials and the health visitors, and much more effort than at present to protect young infants from exposure to infection, for at this age the disease is invariably very serious, and usually fatal.

A Seventeenth-Century Domestic Medicine.

ILLNESS is certainly a more comfortable and probably a less dangerous affair now than in the time of Charles II. Nowadays, what of interest there is often comes to an end when the doctor makes a diagnosis and Nature does her part; then, there were so few diseases to choose between that the hunt was not exciting—real adventures began only when therapeutics intervened. Such, at least, are the thoughts suggested by looking at any old book on domestic medicine, of which many are extant. A fair sample is "A Thousand Notable Things on Various Subjects; disclosed from the Secrets of Nature and Art. To which is prefixed, The Century of Inventions, by the Marquis of Worcester, 1655; also a Discourse on the Emigration of British Birds." It was printed in London in 1663, a sort of *Enquire Within upon Everything*, and enjoyed a considerable reputation. The Century of Inventions is a collection of researches, schemes, and suggestions, some fantastic, some ingenious, and nearly all impossible, by the second Marquis of Worcester, who in his preface offers them to the Lords and Commons as "treasures both for war, peace, and pleasure, inexhaustible." Notable Things is a compilation of earlier date (1586) by one Thomas Lupton. Like our modern examples of *Enquire Within* it thus was obsolete by about half a century when it was offered to an intelligent public.

Among the notable things, medicine, of course, bulks largely. All the vicissitudes of health, in youth and age, from birth to death, are contemplated frankly, and dealt with heroically. The measures advised are of diverse authenticity. Many are merely quoted from the early physicians; others are at second or third hand—"a Spaniard told this to Mizaldus," or, "a woman seeking alms told a lady of this"; some are "proved and true": and a few are guaranteed by the author—"This I know to be certain and true."

If a young bride studied this book, precursor of "Chavasse," she would find much to interest her. She could discover whether she would ever have children (she would read) by applying galbanum to the cervix at night, for in the morning the crown of her head, under the nightcap (if her head were not scabby) would smell of the drug, if she were apt to conceive. Later, to assist speedy delivery, she could drink ox-gall or myrrh in wine, or hyssop, vervain, and dittany in cold ale; or she might tie a gourd root to her back, or bind snapdragon to the privities, to be delivered incontinent. Then, should the afterbirth give trouble, it was open to her to fumigate the womb with the smoke of marigolds.

After the infant was born, she knew that great heed must be taken, especially in a boy, with the cutting of the navel string, "for the member of generation doth follow the proportion of the navel string, wherefore it is meet that midwives have great regard therein." The cord, too, must not touch the ground, but be at once burned, otherwise the child could never hold its water, and therefore would require, on three successive days, to eat a flayed mouse, roasted or powdered.

The hoofs of a cow's forefeet, dried and powdered, would increase her milk, and if, as the baby grew older, he awakened screaming with earache, earthworms fried with goose grease, strained, and a little of the liquor dropped warm into the ears, would help. Did she dread a displacement of the womb after delivery, a leaf of the great Burr applied to the top of the head or the soles of the feet, as the case might be, would remedy matters. As the child grew up, she would use the fasting spittle of a healthy person to cure scurviness, tetter, and all skin eruptions; if he had sore eyes she had the choice of many cures, from the ashes of the head of a cat that is all black, to a mixture of herbs, honey, and the urine of an innocent boy. A child with worms might get off with raisins, eating fasting; for parents of sterner mould there was at hand a powder of red earthworms purged in salt.

Fortified with this book, and the resources of her still-room and herb garden, the mistress of the house could learn how to heal dropsy, ague, gout, stone, fistula, bursten belly, matrix pains, cramps, French pox, smallpox, and strangury. Of most of the remedies it can at least be said that they were not likely to do much harm—cordials of wine and aromatic herbs. Some of them, such as lily root for dropsy, may have been really efficacious, even if unpleasant, as the following moist pack: "If they that be swoln, and are full of the Dropsy, and do lie three days and three nights in their beds, covered with sodden barley, it helps and cures them perfectly."

Never is a doubt as to the effect of treatment hinted at: there must have been many disappointments. To judge from the number of recipes for removing teeth, dentistry seems to have been as great a bogy then as now, though to stuff a hollow tooth with powdered earthworms and mouse dung in the hope that it will be plucked out by the roots proves a sanguine rather than a timorous nature. And yet, when all is said and done, the really unattractive cures are not so many as those which must have been pleasant enough, and to even the most disgusting there is usually a palatable alternative: the patient with toothache, for instance, may be content with oil of rue dropped into the ear—it will cure the toothache for ever. Perhaps the most quaint, and most horrible, prescription in the whole of this family medicine chest is number 53 of the first book:—"Whoso use to rub their fingers between the toes of their feet, when they go to bed, especially where they smell most, and then to smell the same at their nose, will find a perfect remedy to put away the cramp."

The book gives hints on the whole conduct of life, and includes the tokens of impending death. Our forefathers knew death was near if fleas and lice left the cooling body, or else drew to that part of the body where the said heat tarries the longest, which is the hole of the neck, under the chin. The following description is graphic: "If the Forehead of the sick wax red, and his Left Eye become little, and the corner of his Eye run, and his Brows fall down, and his Nose wax sharp cold; if he turn to the wall, if his Ears be cold; if he may suffer no brightness, and if his Belly fall; if he will pull straws, or the clothes off his bed, or if he pick often his Nostrils with his fingers, and if he weaken much, these are most certain signs of death."

Many of the notable things concern domestic life apart from medicine. If the ears of cats be cropped or cut off, it will make them keep at home the better, "for then the water (which they cannot abide) will drop into their ears, being open"; and this: "To make a capon bring up young chickens. Take a capon, pull his belly bare of feathers, and after rub the naked place with nettles : then setting young chickens under him he will marvellously cherish them."

The bringing up of children, teaching them to speak Latin and French in two years, letter writing, polite and otherwise, gardening, legal advice—these and other subjects are also touched on. Fashions change ; will our descendants look on the popular domestic science of to-day with the same amused wonder as we do on the Restoration housewife's friend ?

CASUALTIES.

DIED on service, Captain JOHN DYKES WILSON, Indian Medical Service, on 16th February 1916.

Captain Wilson was educated at Edinburgh University, where he took the M.A. and also the M.B. and Ch.B. in 1909. He entered the I.M.S. as lieutenant on 27th July 1914, and became captain on 27th July 1915.

DIED on service, Captain PETERSWALD PATTISON, R.A.M.C., on 22nd February 1916.

Captain Pattison graduated M.B., Ch.B. in 1901 at the University of Edinburgh, and subsequently became school medical officer in Fife, acting also as Assistant M.O.H. for the county. He received a commission as temporary lieutenant R.A.M.C. on 21st November 1914. He was attached in France to the K.O.Y.L.I., and was invalided home in July.

DIED on service, Captain ARCHIBALD THOMSON CAMPBELL, R.A.M.C., on 22nd February 1916.

Captain Campbell was educated at Glasgow University, where he took the M.B. and C.M. in 1886, and was in practice in that city.

DIED on service, Lieutenant RICHARD GAVIN BROWN, R.A.M.C., on 14th February 1916.

Lieutenant Brown was educated at Aberdeen, where he took the M.B. and Ch.B. in 1903. He took a temporary commission in the R.A.M.C., and had recently returned from service in the Gallipoli Peninsula.

KILLED in action in Mesopotamia, Lieutenant J. THORP WAITE, 5th (Weald of Kent) Battalion The Buffs, on 21st January 1916.

Lieutenant Waite received his medical education at the University of Edinburgh, and took the Scottish Triple Qualification in 1896. He received a commission as lieutenant (combatant) in the 5th Buffs in August 1914, and was sent to India. Afterwards he went with the Expeditionary Force to the Persian Gulf, and was killed when serving with the machine gun section of his battalion.

DIED on service, Brevet Colonel ARTHUR HENRY MOORHEAD, Bengal Medical Service, on 1st March 1916, aged 43.

> Brevet Colonel Moorhead was educated at Edinburgh University, where he took the M.B., C.M. in 1893. He went to France with the second cavalry division of the Indian contingent, in command of a field ambulance, was mentioned in dispatches, promoted to brevet colonel, and made an assistant-director of medical services. He was invalided home last December.

DIED on service, Lieutenant WILLIAM WILLIAMSON KERR DUNCAN, R.A.M.C., on 29th February 1916, aged 37.

> Lieutenant Duncan took the Scottish Triple Qualification in 1914, and had only recently taken a temporary commission in the R.A.M.C.

THE following students of medicine appeared in recent casualty lists:—

KILLED in action, Lieutenant WILLIAM CAMPBELL SANGSTER, 4th Battalion Gordon Highlanders, on 25th September 1915.

> Lieutenant Sangster was a graduate in arts of Aberdeen University, and when war broke out was commencing his second year as a medical student.

DIED of wounds received on 15th February, Lance-Corporal GEORGE CHRISTIE HOOD, 16th Middlesex (Public Schools' Battalion), aged 21.

> Lance-Corporal Hood was the only son of Dr. Hood, Blairgowrie. He was educated at Glenalmond and Caius College, Cambridge.

WAR HONOURS.

Captain ERIC D. GAIRDNER, M.B., R.A.M.C. (T.F.), has been awarded the French Military Cross for services in Gallipoli; he is attached to the Royal Scots Fusiliers, 5th Battalion (T.F.).

Surgeon ALFRED ROBINSON MACMULLIN, R.N., has been awarded the Distinguished Service Cross "for services on 23rd January 1916, at Serengeti, in East Africa."

Graduation Ceremonial.

A SPECIAL Graduation Ceremonial was held in the M'Ewan Hall on 28th March. Professor Sir Thomas R. Fraser presided, and conferred the degrees. At the opening of the ceremonial Chopin's *Marche Funèbre* was played on the organ by Mr. T. H. Collinson, organist to the University. Professor Fraser, in addressing the graduates, paid an eloquent tribute to the memory of the late Principal Sir William Turner.

The degrees of Bachelor of Medicine and Bachelor of Surgery (M.B., Ch.B.) were conferred on the following:—

Keith Paterson Brown, Scotland; Charles Abercrombie Eric Innes-Brownlee, South Africa (Lieut., R.F.A.); Andrew James Caird (M.A., B.Sc.), Scotland (1st class Hons.); Yun Ying Chan, China; Francis William Clark, England; Cecil Thomas Ingram Clarke, South Africa; Alexander Cleland, Scotland; John Andrew Crawford, Scotland; Robert Campbell Crawfurd, England; Herbert John Davidson, Scotland; James Dickson, Scotland; Alfred Vincent Dill, Scotland (1st class Hons.); Tha Doe, Burma; William Haig Ferguson (B.A., Cantab.), Scotland; George Hudson Fraser, Scotland; Bhaskar Balwantrao Gadgil, India; John Agnew Campbell Guy, Scotland; Chester Harris (B.A., Mt. All., Can.), Newfoundland; Charles Ernest Hill, England (2nd class Hons.); John Miller Johnston, Scotland; Ernest Bracewell Kelley, England (Surg. Prob., R.N.V.R.); James Boswell Paterson M'Laren, Scotland; James Manuel, Scotland (2nd class Hons.); George Morris, Scotland; Mathoor Sankara Narayana Panikkar, India; Donald Hugh Paterson (B.A., Man.), Canada (2nd class Hons.); Pierre Ange Rostant, Trinidad; John James Shannon, Ireland; Norman Hubert Smith, England; David Rees Thomas, Wales; André François de Waal, South Africa; Gladys Ward, England; John Mitchell Watt, South Africa (Lieut., R.A.M.C. (S.R.)); Hedley Duncan Wright (B.A., Tasmania) (1st class Hons.).

Central Midwives Board for Scotland.

The Privy Council has intimated approval of the appointment of Mr. D. L. Eadie, 50 George Square, Edinburgh, as Secretary to the Central Midwives Board for Scotland. All communications thereanent should be sent to Mr. Eadie at the above address.

THE NON-PROTEIN NITROGEN OF THE BLOOD, ESPECIALLY IN ITS RELATION TO NEPHRITIS AND RENAL FUNCTION.*

By FRANCIS D. BOYD, M.D.,
Physician, Royal Infirmary.

Nitrogen exists in the blood in a protein and a non-protein form. Nitrogen as a constituent of protein enters into the composition of the serum albumin and serum globulin of the serum. The non-protein nitrogen of the blood is made up for the most part of urea, uric acid, and amino-nitrogenous bodies (van Slyke). At one time ammonia was included, but it has recently been shown that there is but little ammonia present, the amount formerly shown being due to faulty methods of observation. Of the non-protein nitrogen, by far the largest part is made up of urea.

As far back as 1823 Prevost and Dumas demonstrated an increase of the urea content of the blood after extirpation of the kidneys. Since then much attention has been devoted to the non-protein nitrogenous constituents of the blood and urine, especially in nephritis. It is open to question if any "side-room method" has led to a greater waste of time than the estimation of the urea of the urine by the hypobromite method, when the observer was in blissful ignorance of the total nitrogenous intake by the mouth. Investigations of the non-protein nitrogen of the blood are, however, in a different category, and credit is due to the French school, especially Widal and his collaborators, who have strongly insisted on the importance of an estimation of the non-protein nitrogen of the blood as a factor in the prognosis in nephritis. It is true that the methods of the French school have been subject to serious criticism, for they used the faulty hypobromite method of urea estimation which has been shown to be open to an error of 10 to 60 per cent. When Folin introduced his exceedingly ingenious, accurate, and simple methods for the estimation of non-protein nitrogen accurate clinical observations became possible. The methods used in the present observations are those described by Folin and Dennis. The determinations were always made on duplicate specimens of blood, and when the figures did not correspond within a narrow limit, further observations were made.

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* The analyses in this paper were carried out in the Laboratory of the Royal College of Physicians, Edinburgh, in part under a grant in aid of research by the Carnegie Trust.

It is remarkable, however, looking over a series of observations, how closely the figures of duplicate estimations do correspond. The figures throughout are expressed in milligrammes of nitrogen per hundred cubic centimetres of blood.

The non-protein or non-coagulable nitrogen of the blood stands in health, according to Folin and Dennis, at from 22 to 26 mgs., and can be influenced by diet. It increases after a full meal containing considerable protein and diminishes on fasting. Thus in a case of locomotor ataxia in the Royal Infirmary on ordinary diet, blood nitrogen gave a figure of 28 mgs., which could be reduced by a non-protein diet to 22 mgs. The average hospital patient is not, however, in ideal health, and is probably eating more protein than he is used to, and nitrogen figures stand at a higher level than the ideal even when there is no reason to suspect renal inadequacy. Thus a case of cardiac disease, where compensation was fairly established, gave a figure of 46 per cent. on ordinary diet, which was reduced to 29 per cent. on a protein-free diet.

TABLE I.

Case.	Disease.	Non-Protein Nitrogen in mgs. per cent.
I. . .	Cardiac disease, renal congestion	36
II. . .	Mitral disease, renal congestion	32
III. . .	Disseminated sclerosis	40
IV. . .	Aortic and mitral disease	43
V. . .	Cirrhosis of liver	42
VI. . .	Pleurisy	40
VII. . .	Aortic disease	42
VIII. . .	Locomotor ataxia	45
IX. . .	Gumma of chest wall	42
X. . .	Cardiac disease	46
XI. . .	Locomotor ataxia	29
XII. . .	Mitral disease	41

Table I. gives the figures shown by a number of hospital patients for non-protein nitrogen of the blood when there was no reason to suspect nitrogen retention. The average stands considerably above the average for health. But then people in ideal health are not hospital patients. One must conclude that the average hospital patient shows a non-protein nitrogen content in the blood considerably above the ideal of health, but below 50 mgs. per cent. In the hospital patient, then, a non-protein nitrogen between 30 and 40 mgs. per cent. is possible without there being any definite evidence of renal inadequacy.

One of the cherished beliefs of the medical student is that all cases of nephritis show a deficient capacity for the excretion of nitrogen, and that milk is prescribed because it is a nitrogen-poor food. As a matter of fact, to keep up nutrition on milk alone requires the ingestion of a larger amount of nitrogen than on a mixed diet, and hence the excretory power of the kidneys in dealing with nitrogenous waste products is not eased by a milk diet, and the circulation is strained by the ingestion of a large amount of fluid. Again, not every nephritic shows any markedly diminished capacity for the excretion of nitrogen by the urine as measured by the nitrogen percentage of the blood as compared with the ordinary hospital patient.

TABLE II.

Case.	Disease.	Non-Protein Nitrogen in mgs. per cent.	Phthalein Excretion.
I. . .	Acute nephritis	46	67
II. . .	Acute nephritis	41	65
III. . .	Chronic diffused nephritis	32	...
IV. . .	Subacute diffused nephritis	42	48·5
V. . .	Subacute diffused nephritis	41	...
VI. . .	Chronic nephritis, albuminuric retinitis	41	68
VII. . .	Acute nephritis	45	...

Table II. shows the figures for the non-protein nitrogen of the blood in seven cases of nephritis. The figures are certainly above the ideal of health, but do not show any marked increase as contrasted with the average hospital patient not suffering from nephritis. It is of interest, at the same time, to note that in all these cases there was interference with renal function as estimated by the phthalein test. It may be concluded then (as has also been shown by other observers) that many cases of nephritis occur in which there is no definite nitrogenous retention.

The second class of nephritics—those who show a figure for blood nitrogen of from 50 to 100 mgs. per cent.—must be considered as suffering from very definite and serious nitrogen retention. Table III. shows the findings in nine cases. In all there was very definite renal inadequacy. In most the prognosis seemed bad, and the outcome justified the prognosis.

TABLE III.

Case.	Disease.	Non-Protein Nitrogen in mgs. per cent.
I. . . .	Nephritis, uræmia. Death	74
II. . . .	Cardiac disease, albuminuria. Death	59
III. . . .	Nephritis, subacute diffused. Death	53
IV. . . .	Cerebral hæmorrhage, arterial disease. Death	80
V. . . .	Nephritis, subacute diffused. Improved	98
VI. . . .	Nephritis, subacute diffused. Improved	53
VII. . . .	Cerebral hæmorrhage, arterial degeneration, albuminuria. Death	52
VIII. . . .	Chronic nephritis, uræmia. Improved	60
IX. . . .	Chronic interstitial nephritis, uræmia. Death	54

TABLE IV.

Case.	Disease.	Non-Protein Nitrogen in mgs. per cent.
I. . . .	Nephritis, uræmia. Death	220
II. . . .	Nephritis, uræmia. Death	160
III. . . .	Nephritis, endocarditis. Death	123
IV. . . .	Tuberculosis of urinary tract, uræmia. Death	228
V. . . .	Chronic interstitial nephritis, uræmia. Death	139
VI. . . .	Chronic interstitial nephritis, uræmia. Death	190
VII. . . .	Acute nephritis, œdema of glottis and lung. Death	103

Case VIII., though at the time of writing improved, is in a critical condition, and the ultimate result seems only a matter of time. Case V. is of interest. There was a definite syphilitic history and a positive Wassermann reaction. Though the blood nitrogen stood at 98 mgs. per cent., under antisyphilitic treatment and a protein-free diet improvement took place, and the patient was discharged from hospital in fair health, but with albuminuria persisting. From these cases one would conclude that when blood nitrogen rises to between 50 and 100 mgs. per cent. there is grave renal inadequacy, calling for a stringent non-protein diet, and even then the prognosis is grave.

The non-protein nitrogen of the blood at times shows a very high figure. Speaking generally, it may be stated that if the non-protein nitrogen rises above 100 mgs. per cent. the duration of the illness may be reckoned in days, seldom in weeks. Table IV. shows the figures given in seven cases, the blood being taken within a few hours of their coming under observation. All these cases were examples of uræmia. Cases II., IV., V., and VI. showed convulsive phenomena. Case I. died comatose without convulsions. Case III. was drowsy for some days before death, though not actually comatose, and there were marked alimentary sypmtoms pointing to uræmia. Case VII. was not so definitely uræmic as the others, and died of œdema of the lungs after tracheotomy had been performed for œdema of the glottis. In all cases where the non-protein nitrogen of the blood rose above 100 mgs. per cent. death took place as a rule within a few days, in the most prolonged within two weeks. It may therefore be concluded that when the non-protein nitrogen of the blood rises above 100 mgs. per cent. the prognosis is of extreme gravity.

Normally, the cerebro-spinal fluid contains a concentration of non-protein nitrogen within 2 mgs. per cent. of that of the blood. As Cullen and Ellis have shown, changes in the spinal fluid lag somewhat behind the blood. In convulsive uræmia there is, as a rule, an increased pressure within the spinal meninges, and relief of this pressure by lumbar puncture often appears to check convulsive phenomena. In two of the cases of uræmia with convulsions the non-protein nitrogen of the cerebro-spinal fluid was estimated.

TABLE V.

Case.	Nitrogen of Blood.	Nitrogen of Cerebro-Spinal Fluid.
VI. . . .	190 mgs. per cent.	188 mgs. per cent.
IV. . . .	228 mgs. per cent	160 mgs. per cent.

In Case VI., where uræmic phenomena had been present for some time before the observation was made, the non-protein nitrogen of the blood and cerebro-spinal fluid closely correspond and show equal nitrogen retention. Case IV. was of a much more acute description, and the nitrogen retention of the cerebro-spinal fluid was much below that of the blood—there was considerable lagging behind.

Is the nitrogen concentration in the blood and cerebro-spinal fluid the cause of the uræmic phenomena, or is it merely one of the phenomena present in uræmia and an evidence of kidney inadequacy, but not the causal factor? If a nitrogenous body is the cause of the uræmic phenomena it certainly does not appear to be urea. Urea occurs in all the organs and tissues of the body in uniform concentration (Marshall and Davies), except in the fat and the tissues of the urinary tract. The ability of the kidneys to rid the body of urea is very great. When the urea rises in the blood the kidney cells are stimulated. Urea should be non-toxic, and is so in moderate or fairly large amounts; it is only when introduced in enormous doses that toxic phenomena appear, such as muscular twitchings or convulsions. It is therefore improbable that it is the only toxic agent in uræmia, but it may take some share in the production of the phenomena. In this relation an interesting contribution has been made by Ditman and Walker, who find that in nephritis, especially in the chronic atrophic type, oxidation of the purin group to uric acid does not proceed to the normal extent. Methyl-guanidin is one of the most poisonous substances resulting from protein decomposition, and is capable of producing death with symptoms many of which resemble uræmic and eclamptic seizures. Creatinin, under conditions of good oxidation, yields methyl-urea, while under conditions of poor oxidation it yields methyl-guanidin. In nephritis they hold that either the enzyme which converts creatinin into its end-products is at fault, or that bodily reduction processes are in excess of the normal, or both conditions are present, hence the poisonous methyl-guanidin is formed. This theory is very attractive, and is supported by experimental evidence. Yet cases do occur of definite uræmia where there is no nitrogen retention above that found in the ordinary hospital patient. A child was admitted to the Royal Infirmary suffering from post-scarlatinal nephritis and mitral cardiac disease. The urine contained considerable albumin and numerous tube casts. Some days after admission the patient became delirious, and during the afternoon had four convulsive seizures, during which the eyes oscillated in a vertical plane, the arms and legs were in a state of clonic spasm, and there was intense cyanosis. Lumbar puncture and venesection were performed. Estimation of the non-protein nitrogen of the blood showed 40 mgs. per cent., a somewhat low figure for a nephritic. The patient improved under treatment, and is now, two years afterwards, able to be about, though leading a semi-invalid life. Convulsive uræmia may then occur when the blood shows no definite nitrogen retention.

A subject to which an enormous amount of attention and experimental work has been devoted since the days of Bright is that of nephritic hypertension. It is generally accepted that behind the different clinical types of hypertension there are vascular poisons, which are really the fundamental cause of the vascular changes. What those poisons are is not generally agreed; probably they vary. Adrenalin, renin, the secretion of the hypophysis, waste nitrogenous bodies, and extraneous poisons, such as lead, may all play a part in the different types. Table VI. shows a comparison of the non-protein nitrogen of the blood and the systolic blood-pressure in a series of nephritics. Study of the table shows that there is no definite relationship between high blood-pressure and the degree of nitrogen retention, and agrees with the observation of Folin, Dennis, and Seymour. Case VI., with a blood-pressure of 220 mm. Hg, gave a blood nitrogen of only 41 mgs. per cent. Case XIII., a systolic blood-pressure of 218 mm. Hg, while the blood nitrogen was 60 mgs. per cent.

TABLE VI.

Case.	Disease.	Nitrogen of Blood. Mgs. per cent.	Systolic Blood-Pressure.
I.	Acute nephritis	46	134
II.	Acute nephritis	41	104
III.	Chronic diffused nephritis	32	140
IV.	Subacute nephritis	42	94
V.	Subacute diffused nephritis	41	120
VI.	Chronic interstitial nephritis	41	220
VII.	Nephritis, uræmia	74	140
VIII.	Subacute nephritis	59	122
IX.	Chronic diffused nephritis	53	160
X.	Cerebral hæmorrhage, chronic nephritis	80	170
XI.	Subacute diffused nephritis	98	172
XII.	Arteriosclerotic kidneys, cerebral hæmorrhage	52	170
XIII.	Chronic interstitial nephritis	60	218
XIV.	Chronic interstitial nephritis	54	180
XV.	Chronic interstitial nephritis	220	123
XVI.	Chronic interstitial nephritis	160	88
XVII.	Subacute nephritis, endocarditis	123	130
XVIII.	Chronic interstitial nephritis	139	192
XIX.	Chronic interstitial nephritis	190	175
XX.	Subacute nephritis	57	110
XXI.	Subacute diffused nephritis	41	139
XXII.	Subacute diffused nephritis	56	130

Case XIV. showed a systolic pressure of 180, with a blood nitrogen of 50 mgs. per cent. The converse that high blood nitrogen may occur with low blood-pressure is true, but many other factors come into consideration, such as a failing ventricle, etc. It may be concluded then that whatever toxic agent underlies the hypertonus of nephritis, it is not due to gross nitrogenous retention. And, again, that the mere existence of high blood-pressure is not a *necessary* indication for a strict non-protein regimen.

Of the so-called "vital tests" of renal function, the most easily applicable are the iodide of potassium test first described by Duckworth, and the phenol sulphone phthalein test of Rowntree and Geraghty. If 7½ grs. of iodide of potassium be administered by the mouth all iodine should have been excreted by the normal kidney in sixty hours. If a solution containing 6 mgs. phenol sulphone phthalein be administered hypodermically, 80 to 90 per cent. should be excreted by the urine in two hours. Rowntree and Geraghty claim that of all the functional tests the phthalein test is the one of choice.

Fotheringham and Smillie find that the phthalein excretion in the urine and the non-protein nitrogen content of the blood vary inversely. It must be kept in view, however, that the phthalein excretion is influenced by cardiac decompensation and unknown factors, so that quite unexpected results occur in individual cases. The non-protein nitrogen of the blood is less influenced by cardiac and other complicating factors.

TABLE VII.

Case.	Disease.	Blood Nitrogen.	K.I. Excretion in hours.	Phthalein.
I. .	Acute nephritis	46	39	61
II. .	Acute nephritis	41	39	65
III. .	Subacute nephritis	42	24½	48
IV. .	Chronic interstitial nephritis	41	...	68
V. .	Chronic interstitial nephritis	139	120	Not estimable.
VI. .	Chronic interstitial nephritis	160	..	*Nil.*
VII. .	Chronic interstitial nephritis	41	37	63
VIII. .	Chronic diffused nephritis	98	...	68
IX. .	Subacute diffused nephritis	56	...	64

Folin, Dennis, and Seymour find no correspondence between the results of the phthalein test and the degree of waste nitrogen retention; Tileston and Comfort, that the phthalein excretion is roughly proportionate to the degree of nitrogen retention. Table VII. shows the results in a number of cases of nephritis. It would seem to show that considerable nitrogen retention is possible with a fairly high phthalein excretion, while a low phthalein excretion may occur with a scarcely appreciable nitrogen retention. When nitrogen retention is above 100 mgs. per cent. phthalein excretion in two hours is almost *nil*. Nitrogen retention in the blood occurs slowly, nitrogen estimation reveals the work which the kidneys have done for some time previous to the time of observation, while the phthalein test helps to demonstrate the capacity of the kidney at the time of observation.

From these observations, and from the observations of others, it seems justifiable to conclude :—

1. That nitrogen retention does not occur in all nephritics.
2. That when the non-protein nitrogen of the blood rises to 50 mgs. per cent. it is a distinct warning of grave renal inadequacy, and is an urgent call for a rigid non-nitrogenous regimen.
3. That nitrogen values round about or over 100 mgs. per cent. justify the gravest prognosis.
4. That there is no definite relationship between nitrogenous retention and high blood-pressure.
5. That the estimation of the non-protein nitrogen of the blood is of great clinical value as a guide to prognosis and to treatment in all cases of nephritis.

The treatment of nitrogen retention must be principally dietetic. When a nephritic with nitrogen retention comes under observation it is well, if strength permits, to withdraw all nourishment, satisfy thirst with distilled water, and administer purgatives. Considerable nitrogenous waste can be withdrawn by the bowel. Hot-air baths or hot packs are of value.

After a period of twenty-four hours' rest non-protein diet is commenced, consisting of water arrowroot, cream, sugar, and such stewed fruits as are poor in benzoic acid, *e.g.* apples, prunes, figs. This diet can be kept up for a week or even two weeks without the patient suffering. It supplies sufficient energy for the bodily requirements, and if nitrogen retention is not excessive may cause a definite fall in blood nitrogen. At the end of the period milk may be added and more inspiring farinaceous foods than water arrowroot. In the early stages of an acute nephritis, even when there is no nitrogen retention, such a diet is always desirable, for even though the kidney may be able to excrete waste nitrogenous bodies, in doing so it is working, not resting, and work is not good for an organ in an active state of inflammation. In chronic nephritis dietetic treatment must largely be governed by an estimation of blood nitrogen. If there be no nitrogen retention it is inadvisable to keep the patient on a strict non-protein diet, as nutrition suffers. Short periods of nitrogen-free diet are often useful and beneficial to the renal function and the cardio-vascular symptoms, but the patient's nutrition must always be kept in view.

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ENTERIC INTUSSUSCEPTION.

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THE incidence of a single and often rare case is frequently followed within a short space of time by the occurrence of one or more similar cases. Such was my experience lately; the occurrence of a case of intussusception presenting some rare features was followed within a few days by another and very similar object. The interesting features of these cases, the fact that resection of the gut had to be performed in both instances, and the good fortune that in both complete recovery followed—these facts have induced me to publish brief explanatory notes. To systematise the account, the clinical histories will first be stated; remarks of the nature of a commentary will follow.

CASE I.—The first case was that of a boy 3½ years of age, who had for some days been exhibiting abdominal symptoms. Seven days previous to examination he complained at bedtime of spasms of abdominal pain. The spasms were severe: they recurred at intervals of about 15 minutes. At first each spasm was accompanied by the passage of flatus; later they were synchronous with slight onsets of vomiting.

As there had been some diarrhœa in the early part of this day, the condition was treated by administering a dose of castor oil, but without success. Throughout the second day the symptoms were very similar, and at the end of the second day an enema was given; a small, but otherwise healthy, motion resulted. The third day was similar in character to the fourth. The fourth day was characterised by an alteration in symptoms. The general condition became worse; the pulse-rate increased, the temperature rose to 100° F., the abdomen was becoming distended, sickness was more persistent, and there was repeated rectal tenesmus with slight evacuation of mucus.

The symptoms continued and developed during three further days, and it was the seventh night of the illness before medical aid was obtained. I saw the child during the course of the night, and so bad was the impression I received that at first I hesitated to recommend any interference.

The patient was a small, fair-haired child, with pinched and anxious expression, the eyes heavy and toxic-looking and surrounded by dark rings. The ear tips showed the slight cyanosis which denotes commencing cardiac embarrassment. The lips were dry and cracked, the tongue was covered with dark-brown sordes, while the breath was exceedingly foul. The head was continually tossing about in a restless and anxious manner. The cervical lymph glands were enlarged and slightly painful, apparently in a condition of subacute lymphadenitis secondary to a septic absorption from lips and mouth.

The abdomen was uniformly and considerably distended. The respiratory movement was mainly thoracic. Light palpation evidenced the tense, drum-like condition of the abdominal wall: deeper palpation produced general tenderness—there was no tumour to be felt. While the examination was in this stage the child complained of pain, and the ladder-like "pattern" of small intestine could be seen through the abdominal wall. Percussion revealed the presence of free fluid in the abdominal cavity; there was dulness in both flanks, extending forwards above Poupart's ligaments. Intestinal distention had resulted in an apparent diminution of the liver dulness; there was no evidence of splenic enlargement. I examined the rectum, but I could not satisfy myself of the presence of any abnormal feature until I had withdrawn my finger, when I found it covered with faintly blood-stained mucus. The blood examination showed a moderate leucocytosis (12,000); the differential count made it apparent that the polymorphonuclear leucocytes were proportionally increased—there was no glycogenic reaction present.

The cardiac, pulmonary, and urinary systems were apparently healthy. With such facts as these the question of diagnosis had to be faced and certain possibilities presented themselves to one's mind.

The lesion was obviously an abdominal one, and apparently of an obstructive nature; more exactly, the following possibilities required consideration:—

(1) Intussusception of a recurrent or chronic type.

(2) Obstruction secondary to an extra-mural source.

Other possibilities crossed my mind, such as Henoch's purpura and infarction of the bowel, but they were obviously and easily excluded.

The evidence was distinctly in favour of intussusception and the history strongly favoured it, though the condition was too far advanced for the physical signs to yield much definite information. There were two points which at first sight would appear to have weighed against intussusception: (1) The age; (2) the absence of blood in the stools. The first objection was easily overruled. Intussusception is certainly more common at an earlier age than that which this child possessed, but of course it occurs at any age. The second objection was more difficult to overcome, but from former experience one had learned that there is an intussusception originally of the enteric type in which the blood does not readily pass beyond the ileo-cæcal valve.

I considered that one could exclude an ordinary obstruction due to some extra-mural source, by the fact that in such an event the obstruction would have been progressive and more acute. The provisional diagnosis was made that one was dealing with a recurrent or chronic intussusception, and from the absence of blood in the stools one localised it primarily at least in the small intestine.

Operative interference was the only possible indication for treatment, and the operation was immediately proceeded with. Ether was employed as the anæsthetic, and the administration was preceded by the subcutaneous injection of $\frac{1}{200}$ gr. of atropine sulphate. The abdomen was opened in the middle line. Coils of distended small intestine presented, and separating these one detected the typical tumour of an intussusception lying in the right lower abdomen and partially in the pelvis. The weight of the intussusception had produced a torsion of the gut upon an omental pedicle. Secondary to the torsion, not only the intussusception but some inches of the surrounding gut had become necrotic.

Examination showed that the original intussusception had occurred in the ileum about 10 inches above the ileo-cæcal valve. This primary intussusception became duplicated by invagination into the large intestine, the ileo-cæcal valve remaining at the apex of intussusception. The weight of the accumulated and loaded intestine at the ileo-cæcal junction was responsible for the condition of volvulus which had occurred. The ileo-cæcal valve and the reduplication of the intestine in some way prevented the appearance of blood in the rectum. I need not enter into the details of the operation—the diseased gut was removed and an end-to-end anastomosis was completed between the ileum and the ascending colon.

The post-operative history is of interest on account of the two serious complications which developed. On the fourth day after operation the child developed double acute parotitis ; under treatment this subsided. On the afternoon of the ninth day when the wound was healed, and we had hoped all danger was past, the child developed a temperature of 100·5° F., and became irritable and on several occasions was slightly sick. It was discovered that there was a flaccid paralysis of practically all the muscles of the right arm and leg, apparently a typical poliomyelitis.

In the course of the subsequent 36 hours the paralysis had extended to such an extent that it involved, in addition to those above mentioned, the long posterior spinal muscles and the right intercostals. The immediate danger of the second complication passed and the paralysis was slowly recovered from. Apart from these complications the post-operative history was one of uneventful recovery.

The bowels moved spontaneously on the sixth day, and castor oil was administered with satisfactory result on the seventh day.

The operation was completed about eighteen months ago, and the child is now well and healthy in every way.

Case II.—I have purposely entered into detail regarding the history of Case I., in order that I may summarise more easily the remarks on Case II. This second case possesses many features resembling the first, and both cases were dealt with within 10 days of each other. Case II. was a boy 9 years of age. On a Tuesday night he complained of spasms of colic-like abdominal pain. The symptoms were supposed to be due to the fact that he had eaten a quantity of unripe pears, and a dose of castor oil was administered: he was immediately sick, and a second dose of castor oil met with no better result.

During Wednesday there were repeated attacks of spasmodic pain. There was no movement of the bowels, and an enema was given with no result.

Throughout Wednesday night the boy was more comfortable; there was no sickness, but there was absolute constipation.

On Thursday morning there was a recurrence of the abdominal pain: the constipation remained complete and the child was sent into hospital.

On admission he was found to be a pale and under-developed child. He was delirious, and persistently rolled about complaining of pain. The eyes were sunken and hollow, and the tongue was thickly furred.

The abdomen moved slightly on respiration, and below the umbilicus there was a distinct tumour-like projection which was not the result of a distended bladder.

On palpation it was found that the abdomen was somewhat tense. No pain was complained of, and there was no rigidity. A distinct rounded tumour, movable and slightly tender, could be felt in the middle line just beneath the umbilicus. Percussion showed that the tumour area was dull while the rest of the abdomen was tympanitic.

On rectal examination it was found that the gut was full of scybalous masses. No blood could be detected in the bowel or on the examining finger.

The history and the physical examination, with the exception of one point, indicated that the case was one of intussusception. The single contradictory point was the absence of blood from the rectum, and the apparent incompatibility could be explained by localising the intussusception above the ileo-cæcal valve in the small intestine.

Operative interference was indicated, and it was at once proceeded with. The abdominal cavity was opened in the middle line and several coils of congested small intestine appeared. There was found to be an intussusception of the lower end of the ileum. Twenty inches of small intestine were intussuscepted, and the tumour extended to within twelve inches of the ileo-cæcal junction. The pedicle of the intussuscepted bowel was twisted with two twists. Reduction was

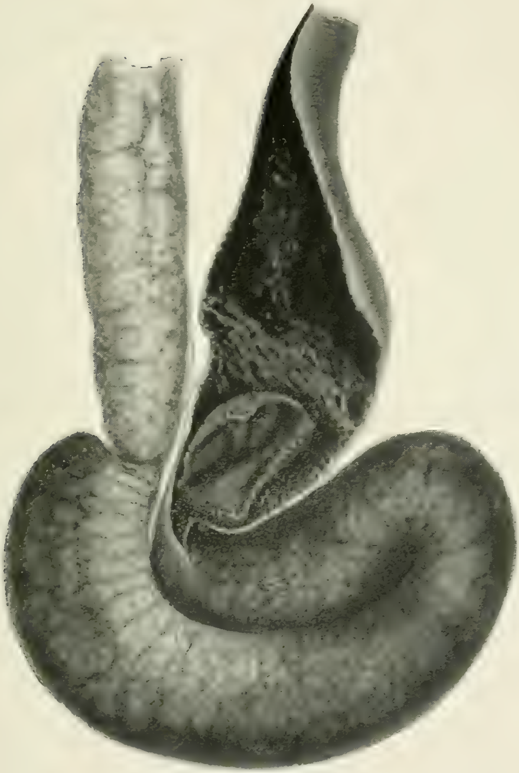

FIG. 1.—SPECIMEN OF ENTERIC INTUSSUSCEPTION.

This specimen represents twenty-two inches of small intestine removed from Case II. It is an example of a pure enteric intussusception.

found to be impossible, and further, a gangrenous change was already distinctly evident in the wall of the gut.

Twenty-four inches of intestine were removed and an end-to-end anastomosis was completed.

The post-operative history was one of uneventful recovery. The bowels moved within twenty-four hours of the operation. Within three weeks the child was well enough to be discharged from the hospital.

Remarks.—Both the above cases were instances of enteric or small intestine intussusception. The first case had passed beyond this stage and combined the enteric with the colic variety, but in its origin it was enteric in type. The cases illustrated certain distinctive features of this disease.

The history is of a chronic and somewhat gradual type; further, it is recurrent. These facts are in keeping with what one knows, from a pathological point of view, is occurring. Before an enteric intussusception becomes definitely established, temporary invaginations occur, and these are evidenced by the recurrent spasms which the history usually notes. The mobility of the small intestine is such that interference with the blood supply, strangulation, and complete obstruction is more delayed than in the common ileo-cæcal and ileo-colic varieties, and therefore the progress of the disease is decidedly gradual and subacute. The age of the patient is instructive. The common types of ileo-cæcal and ileo-colic varieties occur usually during the first year of life; here we have cases occurring at later and such divergent periods as three and a half and nine years.

But perhaps the most distinctive feature is the absence of blood in the stools. It would appear that the passage of blood is prevented for two reasons: partly by the ileo-cæcal valve, which probably is spasmodically contracted, and partly by the kinking of the bowel which occurs secondary to the volvulus which so commonly complicates an enteric intussusception. A case which possesses the clinical features of intussusception and yet shows no blood in the stools, is almost certainly enteric in type.

There is very little that is distinctive in regard to the pathology beyond reiterating the fact that an enteric intussusception is very frequently complicated by a secondary volvulus of the intussuscepted part.

PERFORATING PYLORIC AND DUODENAL ULCERS.

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THE catastrophe of perforation in gastric and duodenal ulcers is as frequent in South Spain as elsewhere, but the satisfactory and even brilliant results obtained where the practitioner makes a timely diagnosis are unobtainable here. For as yet the "acute abdomen" holds little place in the clinical teaching of the Andalusian medical school, where an ancient symptomatology still reigns, and terminal complications are considered the signals of the accident. Another cause which militates against the instant conveyance of the poorer classes, at least to the hospitals, is the existence in all towns and large cities of places under the municipality called "Casas de Socorro," or houses of "help." These edifices, with a paid medical man and a dresser or two in attendance, are primarily intended for the first-aid treatment of slight accidents occurring at some distance from a hospital or the patient's home. The useless overlapping of work produced by this arrangement is obvious, the tendency to surgical slovenliness is ever present, but perhaps the gravest defect of the system is its relation to cases of acute abdominal emergencies. For the patient in the grip of the "acute abdomen," a prey to disabling pain, instead of being taken to a hospital, where at least he might be watched, receives immediate "help" here in the shape of a morphia injection, but no diagnosis. He is thus enabled to reach his home, where he does not call his medical man till the pain returns: for its relief he receives another injection, sometimes in ignorance, sometimes with knowledge of the first.

Thus case after case drifts beyond hope. That the picture is not exaggerated is instanced by the fact of our having been called to two moribund patients in the space of one hour, where the tale was as we have told it. In over 250 operations for gastric and duodenal ulcers only 3 perforations have come under our care where it was in any way possible to give surgical help.

However, as the past decade has shown the profession here the frequency of ulcer, it may be hoped that the next will demonstrate more quickly its most urgent complication, and that the cardinal signs of the accident may be impressed on the practitioners of the future, in whose hands the fate of the patients lies. Of our 3 cases, 2 perforated in the clinique while waiting operation, and were saved. They were both on milk diet and no gastric lavage had been done, but in one case castor oil had been administered a few hours before perforation took place.

Brief notes of the cases are as follows:—

Case I. Male, aged 32, suffering from "indigestion" for several years. The pain at first was marked when the stomach was empty; it was always eased by food, and returned with severity 2 to 4 hours after the meal, or in the early morning when he took bicarbonate of soda to relieve it. Lately, vomiting had supervened, and in the last 15 months he had rarely had a day free from pain. The patient was alcoholic and syphilitic. On admission he had open tertiary sores on the penis. His pain, of such severity as to double him up, was situated in the epigastrium, with a tendency to radiate towards the right side and back. There had never been vomiting of blood or melaena. He was put to bed on a milk diet, while the specific sores were dressed daily. The gastric pain showed no abatement, alkalies and sedatives had little effect, and two days before the day fixed for the operation perforation occurred a few hours after a dose of castor oil. The patient, transfixed by agonising pain, sat up in bed with an expression of terror, sweated, and demanded to be "finished off," as he could not breathe. The pulse at this time was 60. When we saw him 20 hours later his face looked bad, the pulse (after morphia) was 100, rigidity had largely disappeared, but there was marked tenderness still in the epigastrium. He maintained, however, that he felt better. The abdomen was opened at once in the middle line above the navel, giving issue to a large amount of turbid fluid in which drops of castor oil were quite distinguishable.

In the middle of a large œdematous mass occupying the pylorus a perforation admitted the tip of the index finger. Thick lymph lay under the liver and over the duodenum. A catgut stitch passed well away from the edge of the hole in the pylorus tore through the swollen tissues. Another was placed still further out; it also cut through. As each tearing suture only enlarged the gap, we dry-swabbed the space under the liver, the kidney pouches, and the remainder of the abdomen as far as possible, and then lifting the stomach well forward, we belayed the pyloric portion to the belly wall. A large tube was placed under the liver, another at the lower end of the wound, and a third brought out through the loin draining the kidney pouch. The abdomen was closed, the patient put back to bed, and raised in the sitting position. The after-progress was wonderful; the pulse never passed 120. The stomach was washed out twice 48 hours later, as he had some hiccup and vomiting of dark coffee-ground liquids. He was reading a newspaper on the 3rd day. The anteriorly-placed tubes drained well, practically nothing came out by the posterior tube, and they were all removed by the 8th to the 10th day. The patient left 5 weeks later, soundly healed, and returned 2 months later for a gastro-enterostomy, which was successfully performed.

Case II. Male, aged 46, with a history of gastric pain for 6 years. The pain often before food was eased by food, returning 2 to 3 hours after the meal, when the patient often provoked vomiting to ease it. No blood had ever been vomited, but there was a possible history of melæna. One day at his work he was felled by terrific pain, fainted, and was taken home in a cab. We were called 32 hours later by a practitioner who had made the diagnosis of "intestinal obstruction."

This typical history was easily elicited though the patient was in great pain. The pulse was 120; there had been some vomiting; the whole abdomen was tympanitic and painful, but more so over the right side, especially over the right iliac fossa and right hypochondrium. The abdomen was opened in the patient's house in a somewhat poor light—at midnight. On splitting the right rectus above the umbilicus turbid fluid poured out, chiefly from under the liver. In an ulcer far back, firmly adherent to the liver, a perforation was found which it was impossible to suture. The leak was thereafter blocked by a tag of omentum, the abdomen dry-swabbed, a large drain placed under the liver, another in the lower end of the incision, and a plug of gauze left passing down to the perforation. An incision was then made over the pubes and a large tube placed in the pelvis, which gave issue at once to a large amount of purulent fluid. The patient rallied well: the next day the pulse fell to 100, and the day after to 80. There was no vomiting and all seemed well. On the 4th day, in our absence, a duodenal fistula developed and the patient rapidly sank.

Case III. Male, aged 38, with a history of "indigestion" for 12 years. The pain, as a rule, began 2 hours after food, was eased by food, milk, and bicarbonate of soda, and latterly by vomiting. There had been long intervals of complete health, the "attacks" being more frequent in winter. Vomiting of blood and melæna were absent. On examining the abdomen the most painful area was found between the costal edge and the umbilicus on the right side. The patient also complained of a deeply-seated pain well under the ribs. On inflation of the stomach a distinct peristaltic wave was evident. Operation for duodenal ulcer was advised but refused. Six months later he returned. All the symptoms were aggravated; the pain, now more severe, was marked often in the early morning, and vomiting was frequent. On simple inspection of the epigastrium a peristaltic wave could be seen, and there was great tenderness over the right rectus muscle above the umbilicus. The patient now demanded operation, as he said the pain was unbearable, and that it was rarely absent day or night. He was given a note of admission, in which he was ordered milk diet, careful watching, and on no account any purgative in his preparation for operation, as from the incessant aggravated pain in this attack we stated that perforation might be imminent. Two days after admission, feeling a little better, though never free from pain, he was walking on the terrace, when suddenly he was attacked by terrific pain and went back to bed. We saw him about an hour later. Rigidity was absolute; the patient lay quite still, afraid to move. The whole abdomen was exquisitely painful, but in the general tenderness an area over the upper part of the right rectus was clearly the most painful spot.[1] There was no vomiting, and the pulse, carefully noted at this time, was exactly 60. A sixth of a grain of morphia was administered, and as soon as we could get the assistance of our colleague, Dr. C. R. Huyssen, between 2½ and 3 hours after perforation took place, the abdomen was opened through the right rectus. A little clear fluid came out when the peritoneum was incised. On lifting the liver a linear scar about 1 inch long could be easily seen on the front part of the duodenum, beginning half an inch to the right of the pyloric veins, which were well marked. Near the centre of the scar a small perforation which would admit a quill allowed a clear liquid to well up. Beyond the ulcer a few streaks of flaky lymph lay on the duodenum. The whole ulcer lay somewhat in a gutter, the serous coat shelving up on each side, as if Nature, by drawing it inwards, wished to assist the surgeon in its infolding. The leak was at once closed by a single catgut stitch, and a continuous suture in the serous coats buried the ulcer longitudinally. Another layer of a few separate sutures and a broad tag of the gastro-hepatic omentum, fixed over all the sutures, completed the infolding of the ulcer. A posterior, short-loop gastro-enterostomy was then performed, and a long thin glass tube was placed under the liver, its other extremity coming out in the extreme upper angle of the wound. The whole gloved hand was then introduced downwards towards the pelvis, and firm pressure made by one finger between the recti muscles above the pubes. Here by an incision on the bulging finger a larger glass tube was placed in the pelvis. The abdomen was closed and the patient put back to bed, being raised to the sitting position as soon as possible. The intra-abdominal manipulations were considerably hampered by enormous distension of the colon, partly from insufficient preparation of the patient, and from the fact that the stomach was much distended with liquids from the protective pyloric spasm on the proximal side of the lesion. Emptying the stomach with the tube, after closure of the leak, as Moynihan advises, would have avoided this. The patient passed an excellent night and had no sickness till next morning. The pulse never rose above 100, and the tubes were removed 36 hours later, the lower pelvic drain having worked efficiently, practically nothing coming by the upper tube.

This confirms the view of Moynihan and Lecène,[2] who advise complete closure of the abdominal incision, relying on efficient drainage of the pelvis.

The further convalescence of the patient was that of a simple gastro-enterostomy; he left the clinique on the 21st day.

Our experience in perforated ulcers is small, but in all the moribund cases we have seen, and in those which came to operation, previous dyspeptic symptoms have never been wanting. In the two successful cases the catastrophe was heralded by unabating increasing pain in the last "attack," the warning Moynihan has insisted on. This was so evident in the first case, that it enabled us in the second definitely to warn our staff of the importance of carefully watching the patient. We were more than fortunate in saving the first case 20 hours after the accident, and the failure to suture the ulcer was probably compensated by belaying the pylorus to the wall, but in the unsuccessful case, though operated late, insufficient closure of the leak proved disastrous. Very early operation as in our last case, with efficient closure of the perforation and immediate gastro-enterostomy, would almost reduce the mortality of these cases to that of simple gastro-enterostomy.

REFERENCES.—[1] Miles, *Edin. Med. Journ.*, 1906, ii. 224. [2] Moynihan, *Duodenal Ulcer*, 1912: Lecène, *La Presse Médicale*, 23rd October 1912.

THE "FLASH BOILER" AS A FIELD EQUIPMENT.

By WILLIAM ROBERTSON, M.D., D.P.H.

DURING the present war, when stalemate best describes the prevailing conditions, many problems have surrounded the question of safeguarding the physical well-being of troops in the field. Never before, in the history of the world, have such immense armies taken the field, and never before have such extended fronts been occupied for defence and offence. It is almost incredible, for instance, that the Franco-British front alone stretches to a distance far exceeding that separating London from Edinburgh. That, however, is only one feature of the huge battle-ground. Behind these tortuous lines of trenches are the armies which must be kept physically fit by means of good food, suitable clothing, good housing, cleanliness, and last, but not least, by safeguarding them against the many risks of infectious disease. Smallpox is a constant menace which has been defied by vaccination, typhus fever by hygienic billets plus personal cleanliness, and typhoid fever by strict oversight of water supply, cleanliness of trenches, together with rigid supervision of latrines and preventive inoculation.

From those who have been at the front one hears the frequently expressed desire for baths as well as means for effectual disinfection of verminous clothing. As far as possible bathing facilities have been provided, but to appreciate what the requirements actually are, one must pause to reckon up the hundreds of thousands of soldiers who eagerly look forward to the comforting luxury of a warm bath with a subsequent change into clean clothing.

To raise sufficient steam to provide hot water for a range of baths, one must instal powerful and heavy steel boilers. These are costly and cumbersome. As long as an army is stationary steel boilers may be left *in situ*; but should a general advance take place, the inconvenience entailed in "bringing up" the boilers will be very great. On the other hand, a retreat would probably find built-in boilers in the hands of the enemy.

The writer has been surprised that the army authorities have not taken advantage of a form of steam raiser that is pre-eminently suited to such a campaign as that now being waged along the western front. The "Flash Boiler" is no new discovery. It has been used in connection with such steam cars as the "White," "Stanley," "Serpollet," "Turner," and others not so well known.

Having carried out a series of exhaustive experiments in order to test the steam-raising powers of this type of boiler, the writer has no hesitation in declaring that it possesses features which place it far ahead of other types of generators, especially for such emergency work as disinfection and the provision of hot water at immediate notice.

It must be because this type of boiler is not understood that it has not been largely used. It is quite possible, too, that the tendency of the War Office authorities "to hurry slowly" may be responsible for the overlooking of a valuable adjunct to field sanitation.

The "Flash Boiler" is not a boiler in the constructional sense, since it is composed of a series of welded steel tubes coiled together into a compact mass. These tubes are heated by what has come to be known as "Flash Burners," acting on the principle of the bunsen, but on an exaggerated scale. The burners are fed by paraffin under pressure, and when six or a dozen of them are in full blast the heat applied to the "Boiler" is intense, so intense indeed that in a few moments the lowest coils of the "Boiler" become red-hot. As soon as water is brought into contact with such hot surfaces, the liquid is instantaneously converted into steam. That, then, in a nutshell, explains the method by which the "Flash Boiler" operates. And from its rapidity of action, one can appreciate why it claims the name of "Flash Boiler."

To generate enough steam for disinfection and baths from an ordinary steel boiler one would have to use a considerable quantity of fuel, and the time spent in waiting for the generation of steam would not be negligible.

Coal is bulky and costly. Paraffin can be conveyed in metal drums or barrels, and costs about fivepence per gallon. The ordinary steel boiler requires an experienced man to stoke it, to replenish it with water, and to watch its gauges. The "Flash Boiler" can be operated by a youth of average intelligence. The steel boiler has to be built in and becomes a fixture. The "Flash Boiler" can be moved about with the greatest of ease and with very little trouble.

Possessing these attributes, and having proved its capabilities in time of peace as well as in time of war, there need be no surprise that there should be found a strong advocate in favour of the convenient "Flash Boiler." Apart from its use for heating the coils of a "Flash Boiler," the bunsens, with their fierce flame, can be used in field kitchens with very great advantage.

These are generalities, however. We shall now take the "Boiler" and "burner" to pieces, as it were, and explain their methods of operation. And to make the subject perfectly plain, the rough diagrams should be consulted.

When actually in working order the "Flash Boiler," and its components in the shape of water and paraffin cylinders, as well as the tank for raising saturated steam for disinfection, are compactly put together. The illustration kindly prepared for me by Dr. M'Kendrick is diagrammatic, and has been reproduced to demonstrate the principle involved.

AA are two metal cylinders fitted with gauges and centrifugal pumps PP. One cylinder contains paraffin, the other water—the paraffin supplying the burners. the water feeding the "Flash Boiler."

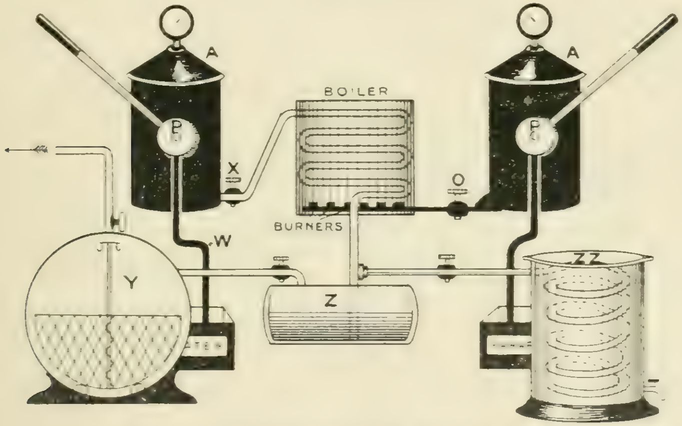

FIG. 1.—The "Flash Boiler" and its Component Parts.

The first step is to pump paraffin into its containing cylinder until its gauge registers a pressure of 10 lbs. to the square inch. Water is then pumped into the other cylinder: but in this case the pressure on the gauge must be brought up to 30 or 40 lbs. This degree of pressure will necessitate the pumping in of air by detaching the tube which dips into the water supply bucket (W). Some waste or wood shavings dipped in paraffin are then applied to heat the burners in order to hasten the vaporisation of the paraffin as soon as it is turned on. In a few minutes the paraffin cock at O is turned on and the bunsens set agoing. The pressure in the paraffin cylinder is sufficient to send the flames roaring round the lowest coils of the "Flash Boiler." At the end of five minutes the cock X is slightly turned on to permit a trickle of water, under its high pressure, to enter the coils of the "Flash Boiler." Immediately a cloud of steam shoots out with great force ready for any work that may be required of it.

The whole operation of raising steam does not occupy longer time, from first to last, than ten minutes.

Every now and again the attendant works either one pump or another in order to maintain the requisite pressures in the respective cylinders.

The drawback to steam generated in this way is that it is liable to be *superheated.* For direct disinfection it is therefore of doubtful value, because *superheated* steam lacks the power of penetration and may cause scorching. For any other purpose, however, the steam coming direct from the "Flash Boiler" may be confidently employed. For example, it may be led to a wooden or metal tank containing water which can be rapidly heated by letting down a coil into the water (ZZ). Through this coil steam would circulate and finally escape into the water to bring it up to the desired temperature. Or, again, for drying clothes, coils of steel piping led from the "Flash Boiler" can be covered in by a temporary wooden or corrugated iron structure, and damp or sodden articles suspended over the protected piping. After passing through the drying-room the escaping steam could still be utilised for heating water in a tank as already described.

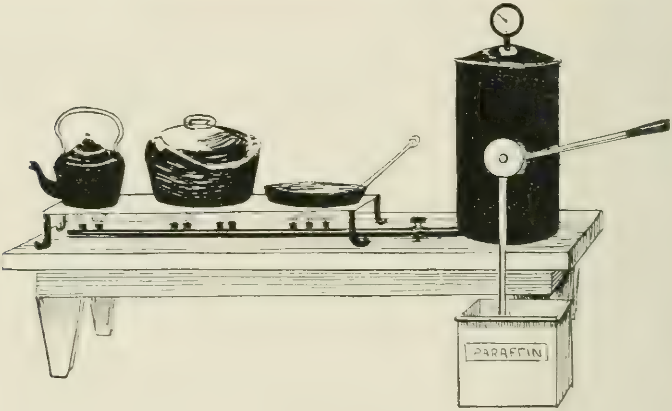

Fig. 2—The "Flash Boiler" used for Cooking.

Water may be sterilised in quantities by making use of steam generated under the high pressure indicated in the "Flash Boiler."

For the disinfection of infected clothing the value of *saturated* (not superheated) steam remains unchallenged. Accordingly, in actual practice, the steam from the "Flash Boiler" is led first to a steel drum (*Z*) containing water. The superheated steam quickly boils the water, from which liberal volumes of "wet" steam are available for supplying a steam disinfecting apparatus (Y). Many such apparatus are in actual operation at home and abroad, so that there is no question of theory about the principle.

The system is so simple and inexpensive that one is surprised to find it so little known.

For field kitchens nothing could be more adaptable nor more convenient to use than the paraffin "Flash Burner." The requirements are a cylinder with its gauge, as well as a pump and tubing to connect up to a paraffin reservoir in the form of a metal or wooden bucket. A feed-pipe from the cylinder with its burners can be very quickly placed under a cooking range which may be specially prepared from an iron plate or improvised by the many handy men who are to be found among our soldiers (Fig. 2). Why the present clumsy and slow method of coal fires is still persisted in when such an obviously convenient fuel as paraffin is available it is difficult to comprehend.

THE ROYAL COLLEGE OF SURGEONS OF EDINBURGH —AN EPISODE IN THE LIFE OF THE CHIRURGEON-BARBERS OF EDINBURGH DURING THE COMMONWEALTH.*

By CLARENDON HYDE CRESWELL, F.S.A.Scot.

ALTHOUGH the following story contains no revelations of a professional character it serves to illustrate the patience and forbearance of the craft in dealing with domestic troubles at a critical period of their existence.

It may also be of interest, as it brings us closely in touch with local history and throws a vivid light on the conditions of the city when under the power of Oliver Cromwell.

In order to make the narrative more intelligible, it is necessary to remind you that since the year 1505 the Incorporation of Surgeons and Barbers had held the exclusive right or monopoly of exercising their trades within the city of Edinburgh. Their jurisdiction was for many years limited to the ancient bounds of the city, but such outlying districts—or suburbs, as they were called —as Leith, the Canongate, and Portsburgh had trade arrangements of their own. In 1636, however, when the superiorities of the Canongate fell into the hands of the city, considerable friction arose amongst the various crafts which were now to be linked up with those of Edinburgh. In this way the barbers of the Canongate, with whom our story deals, and who hitherto had been free traders, showed great reluctance to come under the jurisdiction of the Surgeons and Barbers of Edinburgh, and to be compelled to subscribe to the funds of a society from which they would reap but little benefit in return. To the credit of the Surgeons, they allowed some years to elapse before attempting to exercise their authority; and although the Town Council in 1641 had passed an Act "that in the matter of Chirurgie" the inhabitants of the suburbs should be provided with skilful and honest men, "and not left to the arbitrament and imposture of women and ignorants," it was not until May 1649, after some encroachment had been made upon their privileges, that the Surgeons induced the magistrates to order the bailies of the newly acquired district to take in the basins and signs of the unfreemen barbers within their burgh until they should come in and subject themselves to the orders of the Surgeons of Edinburgh. To this Act the authorities of the Canongate paid so little attention that a month later one of the Edinburgh magistrates was sent down to the Canongate, along with the Deacon of the Surgeons, to see the order carried out. Even this seems to have had but little effect, for in the following July the bailies of the Canongate were summoned to appear before the Lord Provost and Council of Edinburgh, when they promised "to give concurrence and assistance to the Deacon of the Chirurgeons against the unfreemen within their bounds at any time he pleased to require or desire them to that effect."

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* Read before the Society of Antiquaries of Scotland, and published in the *Proceedings* of the Society, vol. xlviii.

This brought matters to a crisis, and eventually the barbers themselves were arraigned before the Court at Edinburgh, where they protested loudly that neither the magistrates nor the Surgeons were ever authorised by any right flowing from the barony of Broughton to assume a control over them in exercising their craft within the regality; that they were never erected into a company nor subject to a deacon; but that they, their authors and predecessors, had pursued their trade in the past at their own hand only, without permission or warrant from anyone. On the magistrates declaring, however, that barbering within the Canongate could no longer be carried on without a licence, a certain Robert Preist and five other barbers submitted themselves and expressed their willingness to comply with the magistrates' decision. They were then appointed by the Surgeons to be free barbers within the bounds of the Canongate only, where they were to have full power to follow the barber craft: the Surgeons on their part undertaking to protect them against all others not so admitted. They also took the oath to obey all the Acts of the Incorporation, to pay a quarterly subscription of 13s. 4d. for themselves, and £4 and 40s. respectively for the booking of servants and apprentices.

Shortly after this the city was occupied by the English troops, and Preist, the Canongate barber mentioned above, appears to have made so many influential friends amongst them that, in spite of his oath to dwell and pursue his avocation within his own burgh, he actually took a shop within the city walls, and there for a time successfully plied his calling in defiance of the wrath of the Surgeons and of the power of the magistrates. Considering that this privilege was more than the Incorporation had power to grant, even to their own sons or apprentices until they were admitted Surgeons, the feelings of the craft can be better imagined than described.

Incensed at Preist's presumption, and envious, no doubt, of the good trade he was driving, the freemen barbers of the town complained bitterly of his presence amongst them, and petitioned the Surgeons to have him at once removed. Two of their number, they declared, were already broken since Preist's encroachment, and unless he was speedily suppressed, they were afraid that more of their brethren would be brought to poverty, and so become a burden to the Society and the place they lived in. "Therefore our humble desire and request is to you," concluded the petition, "as ye will be answerable to God and prevent the fearfull cases of many families, widows and orphans within your Incorporation, be faithful in the trust put upon you by us and so much the more because of the oath of God lying upon you that ye leivens lawfull means for maintaining of us in our lawfull rights and privileges, which we are confident will bring much peace to you in the day of your accompts, encouragement to all your successors, and comfort to us who are groaning under the present oppression."

Preist was now cited to appear before the Surgeons for transgressing their Acts and for violating his oath. The meeting took place on 4th October 1651, when, in reply to the deacon as to why he had broken his word, viz. not to trim nor to put out signs nor basins within the burgh, but in the Canongate only, Preist said he would not observe that oath nor obey that Act, but that he would work within the burgh of Edinburgh according to the liberty and warrant granted to him by the Captain of the Castle, and in a disdainful manner said, "Goe ye ask of him by what liberty I work," and immediately he turned his back rudely, saying, "Do what ye will ye will not mend yourselves," and went out of doors. The Surgeons then applied to the magistrates to have Preist sent back to the Canongate, but a letter dated August 1652 shows that, although he was then under orders to quit the town, he had not complied with it. The letter is addressed to "Our loving friends the Deacon and rest of the trade of Barber Chirurgeons within the Citte of Edinburgh," and bears the signatures of the four English gentlemen who had been recently appointed judges or commissioners for the administration of justice in Scotland. It briefly states: "Whereas Robert Preist, barber inhabitant in the Citte of Edinburgh, being not free thereof, is ordered to remove out of the same, but we being informed that between terms, houses—at least any convenient—are not to be taken and he being willing to remove at the end of the term, and in the meantime not to hang out his basins, we therefore desire that this, his reasonable request, may be afforded, and we shall take it as a courtesy. And so rest, your friends, George Smyth, A. Owen, T. March, Edward Mosely."

Unwilling to break into open dispute, and possibly being influenced in some degree by the quality of the writers, the Surgeons exercised their discretionary powers by not insisting upon Preist's removal, so long as he refrained from exhibiting the symbols of his trade. We next find a copy of a letter from Robert Lilburne, commander of the English troops in Scotland, better known perhaps as one of the Regicides, to the Lord Provost, containing a proposal that his Lordship should permit Preist to continue his business in Edinburgh, in spite of the Surgeons and of their jurisdiction over the barbers. The letter was written on 30th March 1653, at Dalkeith, where the English had established their headquarters, and runs as follows:—

"My Lord,—This bearer, Master Preist, having (so I am informed) for about these ten years past followed the profession of a barber in Scotland and behaved himself civillie and inoffensivlie, and having for about a year and a half past lived in Edinburgh, and being now threatened to be debarred from the exercise of his profession there, I am desirous of recommending him unto you, that you will give order that he may be permitted to exercise his calling for the trimming of the English officers and others in Edinburgh, which I conceive you may do without infringement of the liberty of any Companie in the Cittie (he not at all meddling with Chyrurgerie), and thereby you will show ane act of civilitie to the officers, and I shall be readdie upon all occasions to answer your respect to them and him therein."

With the commander of the forces, the English judges, and the Captain of the Castle all actively interesting themselves on Preist's behalf, it is not surprising that the Incorporation was somewhat anxious as to its position, besides being deliberate and cautious in its actions. A letter from a well-wisher of the craft, holding a position of public trust, in reply to one he had received from the Deacon and brethren of the Incorporation, shows them to have been all this. While giving good advice, he reminds them that in such affairs they alone were not sufferers, but the whole nation along with them. In referring to that "contemptible fellow Preist," he considered it strange how a man could offer to pity him in so unjust a thing. As for the officers of the army, he continues, "I know not what they may not do if they pity him, and as for his power with the Judges of Parliament, which is most to be feared by you, I am confident, as yet, there is no such thing passed here in Parliament, neither do I think they would stoop so low as to take notice of such things, for sure I am, that such things will not be honoured by the Authorities, wherein I hope we shall not be wanting to obviate or represent as occasion offereth. In the meantime," the letter concludes, "be not discouraged, but maintain your liberties with prudence and confidence against your present disturber, and all such snarling corries of whom be not afraid but assert your liberty, for I find not nor fear not no danger in so doing." The letter bears the signature of John Mylne, who, besides being Master Mason to the late King, was much given to politics. He several times represented the city of Edinburgh in Parliament, and at the time in question was in London upon Parliamentary business.

The contents of the letter seem to have encouraged the Incorporation, and to have inspired them with so much confidence that they immediately intimated to Preist with all legal formality that, unless he removed out of the town by Whitsunday 1653, they would declare him "infamous" and debar him from the benefits of his liberty "in all tyme coming."

But, alas! Whitsunday passed, and the new year dawned, and still Preist continued his work in the city. The march of events at this time is difficult to follow, but apparently recent changes had lost to Preist his most valued friends. Two of the judges had already been recalled, and the spring of 1654 found Lilburne superseded by Monck, whose courtesy and urbanity made him many friends in the Scottish capital. Now was the opportunity for the Surgeons to seek justice. They did—and got it.

A last letter on the subject reveals the concluding facts that, on the representation of the Surgeons, Monck ordered a commission to assemble, to inquire thoroughly into the case, and to report the result to him. Finally, in September, Monck writes from Dalkeith: "Upon the report of the referees within mentioned, it having been made appear that one Robert Preist gave his oath without compulsion, and therefore ought to fulfil the same. I do therefore thinke fitt and order that the said one Preist dos remove out of Edinburgh within three weeks after the date hereof, and live conform to his oath.—(Signed) GEORGE MONCK."

The Incorporation, having at last gained their end, generously restored back to Preist his forfeited privileges, though they refused a request that he might remain unmoved until Whitsunday 1655.

Thanks to Monck, Priest was relegated back to the Canongate, and does not seem to have again troubled the calling.

Thus ends a sequence of simple events which, besides bringing the craft in opposition to many persons whose enmity at such a critical period it was perilous to incur, also caused them no end of trouble, and, for those days, a considerable amount of expense.

If there is any pleasantry at all in the story, it certainly lies in connection with the latter. The Surgeons' accounts show it to have involved the outlay of comparatively large sums of money. Between 1st September and 13th December 1654 it costs the calling £159 Scots. The details of another £60 Scots, which were spent in one week in the year preceding, furnish many items both instructive and entertaining, but unfortunately the shadow of ambiguity rests upon them.

The items alluded to are as follows:—

4th April 1653.—Spent in Thomas Mesent's house upon ane Friday at night in relation to Robert Preist's business . . .	£03 03 00
Upon the Saturday thereafter in the morning before going to Dalkeith . . .	02 02 00
For our Dalkeith voyage for seven horses .	12 00 00
For our dinner	18 02 00
At our return at Robert M'Kean's house .	05 07 00
Upon the Friday morning with Robert Anderson	00 15 00
Given to Anna Kerr	06 00 00
More for thanking some particular persons .	08 12 00
At a consultation with the Judge Advocate .	17 05 00

Whatever may be the true explanation of those entries, there exists in the College archives, however, sufficient evidence to exonerate the Surgeons from any suspicions of immoderate bacchanalian proclivities. An insignificant scrap of paper, too modest in appearance to be called a document, bears simple yet eloquent testimony of their earnest aspiration to soar above the customs of an easy-going morality. Penned in a careless way, certainly not at the hands of a scrivener, and signed by ten members of the craft, this unique epistle runs:—

"We undersubscryband for the weill and profite of ourselves Our awin credit and ye respect of our profession and for uther good considerations moving us Be the tenour heirof of our awin proper motive Bands and Obleiss Us ilk ane for our awin parts. That we shall nowayes hant nor be fund in Tavern or Taverne house within ye burgh of Edinburgh fra ye dait of thir presents

To ye xxx day of August 1622 yeirs. Except allanerlie (only) at dinner and supper Under the pane of payment to our box of ye sowme of fyve punds totius quotius for ye weill of ye craft. Anent is our hand at Edinburgh the 30th day of August 1621."

No matter what may have been the particular motive of the Barber-Surgeons in uniting themselves in such a laudable purpose, it is probable that, in a small city such as Edinburgh then was, their example would do more towards the improvement of social life than had been effected by the then recent legislation of the Scottish Parliament.

RECENT ADVANCES IN MEDICAL SCIENCE.

MEDICINE.

UNDER THE CHARGE OF

W. T. RITCHIE, M.D., EDWIN MATTHEW, M.D., J. D. COMRIE, M.D., AND A. GOODALL, M.D.

Management of Patients with Chronic Renal Disease.

A GREAT deal of time and energy has been devoted in recent times to the study of kidney function. Among important recent advances have come the electrocardiograph and the phenolsulphonephthalein test, and these functional tests have in many particulars modified practical management. Janeway (*Amer. Journ. Med. Sci.*, February 1916) discusses the management of the different types of chronic nephritis met with in general practice. It has to be recognised that there is as yet no treatment based on the problem of its cause except in a very few instances, such as syphilis or lead poisoning. For the most part, treatment has in the past been purely schematic and based on a conventional diagnosis. Since this treatment usually involved violent interference with the habits of a lifetime, even though it did not use dangerous drugs, we cannot regard it as a harmless procedure. To tell every patient with albuminuria or hypertension to stop eating red meat or, still worse, to go on a milk diet, is evidence either of colossal ignorance or of inexcusable mental laziness. Much thought and tact is necessary to accomplish readjustment of the life of a patient with chronic disease to the necessary limitations. The treatment of chronic disease has two aims: the prolongation of life and the amelioration of discomfort. Chronic renal disease presents a great variety of symptom combinations, but certain clinical types occur so frequently that they present themselves as specific practical problems.

1. Patients in whom albumin and casts in the urine are the only evidence of disease. These come from insurance offices, from cliniques for children, or may be found among supposedly healthy people. An important question to be settled is whether the albumin and casts are the last remaining evidences of a renal lesion which is healing. Pregnancy, scarlet fever, tonsillitis, syphilis, etc., may have caused nephritis without noticeable symptoms. If such possible cause can be found, or is even suspected, then a period of rest in bed with bland diet should be given a thorough trial. Great sacrifices should be made to prevent the development of chronic diffuse nephritis leading to contracted kidney in later life. If, however, there is no suspicion of a past or existing infection, and if a week in bed on milk diet has no

appreciable effect upon the albumin and casts, then bed and milk diet are an unwarrantable hardship, because they are sacrifice without result.

In children the next problem is the differentiation of postural albuminuria. The urine passed at different times of day should be tested separately, and the effect of standing fifteen to thirty minutes in a marked lordotic position will often clear up the diagnosis. In these cases a large amount of protein may be precipitated by cold acetic acid. The treatment should be on the lines of general invigoration with gymnastics, and diet should be ample, not restricted.

After separating these two types there remain a large number of patients in whom the cause of the albuminuria is not evident. In them it is of first importance to exclude local surgical conditions. Then a search should be made for a remote focus of infection in tonsils, teeth, gall-bladder, seminal vesicles or prostate. Possible toxic causes, such as the action of arsenic taken therapeutically, must be kept in mind. The effect of cold baths, exercise, and such factors should be studied. Apart from wholly temporary albuminuria, it is wise for the physician to regard albumin and casts as the evidence of a definite renal lesion but not necessarily calling for either a bad prognosis or much interference with the patient's life. It is even more important to watch their blood-pressure than their urine. If this begins to rise, then the development of symptoms is to be looked for. A tendency towards nocturnal polyuria or to fixation of specific gravity is an almost certain danger sign. These point to beginning inability of the kidney to concentrate urea, and therefore indicate anatomical damage which has reached the stage of seriously compromising the large factor of safety of the kidneys. Until hypertension, nocturnal polyuria, and other symptoms begin, symptomatic treatment is quite unnecessary. Safeguarding treatment is important, but must not go beyond what is of proved efficacy. Severe physical strain and exposure should be avoided. The wearing of woollen underwear is desirable. The excessive use of alcohol and tobacco should be warned against, and the common mild infections should be carefully treated. Condiments and creatinin are harmful, and therefore spices and soups should be avoided. If the phenolsulphonephthalein test is normal there is no reason to restrict protein intake below a moderate ordinary. Patients should be advised to reduce the amount of salt used for the sake of the training in case it becomes imperative later.

Diabetics with albuminuria, unless the phenolsulphonephthalein test shows an excretion below 40 per cent. or there are definite symptoms such as œdema, should be submitted to the dietetic treatment of diabetes and the albuminuria should not interfere with this.

2. Patients with hypertension with or without a trace of albumen and with slight symptoms or none at all have come into special

prominence since the introduction of blood-pressure instruments. They are generally past middle age. There are changes in the renal vessels and arterioles elsewhere but there are no renal symptoms. Slight cardiac or neurasthenic symptoms are common. Safeguarding treatment is the entire problem of their management. All avoidable influences which raise blood-pressure should be excluded. Mental and emotional strain have a specially bad influence. A man of important business affairs should not be advised to give up work, though a mid-day rest may be enjoined. Adequate sleep is important. The effect of tobacco must be noted. Mild exercise is indicated, but mild anginoid pain calls for great care. When exercise cannot be allowed, massage is helpful. Moderation in the use of salts and fluid is required. Physiological economy in nutrition should be practised, but harm may be done by substituting unpalatable for accustomed food. A mild climate should be advised when winter conditions are severe. Vaso-dilators should not be used except in emergency. Aconite is valueless.

3. A large group is that where there is hypertension and definite myocardial insufficiency. They present primarily the problem of treatment of a circulatory disease. Both safeguarding and symptomatic treatment are essential. The phenolphthalein test should be carried out. Auricular fibrillation or œdema with congested liver is an indication for digitalis. If it does not succeed alone with proper diet, then one of the caffein diuretics should be given not oftener than every second day. Regulation of the diet is one of the most essential features of treatment. The three factors to be considered are the fluid, the salt, and the nitrogen. Practically all these patients require restriction of fluid, the degree of limitation depending on the output and the amount of œdema. It is scarcely possible, however, to discuss the water changes separately from the salt, since in these patients they are concurrent.

The most distinctive result of a test-meal in myocardial insufficiency without renal involvement other than chronic passive congestion is a low water output with a fairly high specific gravity, nearly always 1020, extremely low salt concentration and total output and a normal nitrogen excretion brought about by the high concentration of nitrogenous bodies in the urine. The greater the degree of accompanying contraction of the kidney the more the specific gravity tends to be fixed and at low level, nocturnal polyuria to become marked, and the concentration of nitrogen, especially in the night urine, to fall below the normal. With any of these features in evidence further tests for functional capacity of the kidney are required. A falling index of urea excretion or blood nitrogen above the normal indicates the need for limitation of the protein intake. The practical means for accomplishing this limitation vary from a low protein diet, which can never be an exclusive milk diet, to the introduction of short periods of nitrogen starvation in the worst cases. In such periods carbohydrate food should be given freely to spare protein.

Where there is much œdema a salt-poor diet is essential and limitation of fluids also is required. These requirements may be met by giving 800 c.c. of milk daily as the only food or fluid allowed. When diuresis is abundant and dropsy disappearing, this may be increased to 1500 c.c. The abuse of salt, bulky meals, and large volumes of fluid should be interdicted for the future. Tobacco is harmful, but a little alcohol may be allowed. After recovery from urgent symptoms the return to activity must be very gradual. Massage, passive exercises, and hydrotherapy are all helpful.

4. A smaller group of cases has œdema as a prominent symptom without notable myocardial insufficiency. A large proportion of these cases have a subacute or chronic diffuse nephritis—a true inflammatory lesion involving glomeruli, tubules, and interstitial tissue. The common name given to this group, chronic parenchymatous nephritis, is altogether a misnomer. A number of cases under careful treatment prove to be protracted acute nephritis and eventually make a functional recovery. Others develop uræmia and enter another group. A few are examples of waxy disease. Still others are examples of a degenerative, probably toxic, lesion of the tubular epithelium. The pregnancy kidney is an example of this type. There is a marked inability to excrete salt. Treatment should always begin with a low water and salt intake. Sweat baths, purging, and hot packs may be required.

5. Uræmic symptoms may be superimposed on one of the foregoing types. The differentiation of the severe headache of uræmia and that due to cerebral vascular disease or of uræmia from an organic coma or hemiplegia may be very difficult. Lumbar puncture may help. Changes in the optic nerve or retina are nearly always present in uræmia, and functional tests show insufficiency. A test-meal (which must have a low protein content) may be employed. It will show nocturnal polyuria, fixation of the specific gravity at a constant level, which is too low, indicating inability to excrete the normal constituents in anything but low concentration. Nitrogen and salt concentration are equally reduced. Sodium chloride excretion may be affected as an isolated functional disturbance, but nitrogen excretion seems only to be affected in quantitative renal insufficiency in company with all of the other functions except water excretion, which may remain intact. This salt retention does not necessarily lead to œdema. There may be thirst, polyuria, and loss of weight, with dryness of the skin and tissues. The phenolsulphonephthalein test shows excretion diminished in proportion to the degree of renal insufficiency. Treatment is purely symptomatic. The distressing paroxysms of dyspnœa usually demand special relief. The low alveolar CO_2 shows acidosis, but alkalies may

fail to relieve. For many patients morphia alone is effective, but it occasionally precipitates the rapid onset of anuria with coma, and once begun has to be used in increasing doses. Chloral hydrate is often effective and should be given a trial. Insomnia is often connected with dyspnœa on first lying down or with dyspnœic paroxysms through the night. One serious mistake is to insist on these sufferers going to bed. Bed soon acquires for them a mental association with respiratory distress and acts by suggestion as well as directly. The breaking up of this suggestion through a few good nights in a chair may make possible the return to restful sleep in bed. A vaso-dilator such as sodium nitrite before retiring may be of great service. The gastro-intestinal disturbances are central or eliminative. Lavage may be tried, but for the most part general sedatives are required. Diet is generally reduced by the patients, since anorexia is the rule. In the severer cases only starvation can hinder the nitrogen accumulation. In the early cases a very low nitrogen diet is indicated with nitrogen starvation on days of severe symptoms, giving as much carbohydrate as possible. There may be great improvement, but more frequently it is merely a choice of evils. The amount of fluid allowed should depend on the urinary output, and should be limited by this or by the occurrence of œdema. Of direct measures to reduce the retention of poisons, bleeding takes first place, but it increases anæmia. Bleeding and transfusion may be helpful. The operation of bleeding into a citrate solution, washing and returning the corpuscles, has been tried without much success. Bleeding has its greatest value in the case of sudden convulsive seizures. The removal of 500 or 600 c.c. of blood is indicated, and recovery is common. Associated myocardial insufficiency when it exists calls for treatment. The superposition of passive congestion on moderately damaged kidneys may precipitate severe renal insufficiency. Of equal importance is the urgent necessity for the treatment of any associated obstruction of the urinary tract. Backward pressure from an enlarged prostate with even a moderate amount of residual urine combined with only slightly damaged kidneys may lead to severe renal insufficiency with uræmia. A. G.

SURGERY.

UNDER THE CHARGE OF

J. W. STRUTHERS, F.R.C.S., AND D. P. D. WILKIE, F.R.C.S.

"QUIET HIP DISEASE."

UNDER the above title Taylor and Frieder (*Surg., Gynec, and Obstet.,* February 1916) record 22 cases of the condition usually known in this country as osteochondritis or Perthes' disease of the hip. The importance of recognising this disease lies in the fact that it closely simulates tubercular disease in its earlier stages, but can be distinguished from it by radiographic examination, and that the treatment is comparatively simple and the prognosis, as regards recovery with a freely movable joint, good. It consists in a peculiar flattening, with wasting of the head of the femur, which may continue slowly for one to three years, ultimately becoming arrested, without any of the usual sequelæ of inflammatory joint lesions, except that it occasionally gives rise to a mushroom-shaped expansion of the head as met with in osteo-arthritis. The credit of first separating this condition as a definite entity is due to Perthes, who discovered, in operating on a case, that there were no signs of arthritis in the joint and that the flattened head was covered by normal cartilage. In the cases recorded in the present paper the age of onset varied from four to sixteen years. The patients appeared in excellent health and only suffered from slight disability in the form of mild pain and some limitation of movement, especially lateral movement and rotation with the hip flexed. Some cases showed no shortening while others showed shortening of $\frac{1}{4}$ to $\frac{1}{2}$ an inch. Two showed lengthening, presumably not due to the disease, of $\frac{1}{4}$ of an inch. Moderate atrophy of the thigh and leg was present in most cases. In all cases a marked and characteristic flattening and thinning of the epiphysis of the head of the femur was present, and on the detection of this marked change, coupled with the relative mildness of the symptoms, depends the diagnosis.

Treatment may be varied according to the severity of the symptoms. If pain is troublesome, rest in bed, and occasionally the application of a plaster spica for a few weeks, may be carried out. Long periods of recumbency are unnecessary. In the absence of pain, little or nothing may be required, and it may confidently be anticipated that after an interval varying from one to three years pain and limp will disappear and only a very slight restriction of movement will persist. The deformed head apparently never regains its normal contour.

The cause of the condition is quite unknown, and the authors suggest that the name "quiet hip disease" should provisionally be adopted till the pathogenesis of the disease has been worked out.

PRIMARY NEOPLASMS OF THE LYMPHATIC GLANDS, INCLUDING HODGKIN'S DISEASE.

Coley (*Annals of Surg.*, January 1916) has made a study of 167 cases of lymphatic gland neoplasms coming under his own observation. He states that these tumours give the most hopeless prognosis of any in the entire field of malignant growths, not only from the standpoint of surgery, but also as regards X-ray and radium treatment. In most cases he says an early positive diagnosis cannot be made without a microscopic examination, and not always then. He does not believe there is much risk in removal of enough tissue for microscopic examination.

Difficulty is often experienced by the histologist in classifying a given tumour, and rather in contradiction of the opinion regarding early diagnosis already quoted, Coley, later on, states he has been led to pay less heed to fine histological distinctions and to group his cases according to certain well-defined clinical features. Thus cases with enlarged glands usually beginning on one side, soon involving the other, the glands being freely movable, discrete, and not adherent to the skin, not breaking down, until later involvement of axillary and inguinal glands, and frequently liver and spleen, form a definite group usually classed as Hodgkin's disease. They invariably progress to a fatal result, and Coley maintains that this disease is merely a variety of sarcoma.

Cases beginning as a single nodule tending to enlarge and infiltrate the surrounding tissue, growing rapidly and rarely giving rise to metastases, form a second group, known as the ordinary round-cell sarcoma of lymphatic glands.

The third group, usually designated as lymphatic leukæmia, is regarded by Coley as closely allied to Hodgkin's disease, and therefore a variety of sarcoma.

Cases in the second and third groups are, like those in the first, invariably fatal; and although Coley has seen, like others, marked benefit follow the use of X-rays in such cases, he knows of no case of genuine cure, and is a strong advocate of the prolonged use of the mixed toxins of erysipelas and B. prodigiosus, either alone or as an adjuvant to operation where this is possible. A summary of the 167 cases he has personally observed shows that twenty-six patients have apparently been successfully treated by the toxins, and the tumours in these cases have entirely disappeared, without operation.

Of 76 cases of cervical sarcoma 8 have remained well from two to fourteen years. Of 24 cases of sarcoma of tonsil and neck, 5 have remained well for varying periods up to nine and a half years. Of 10 cases of sarcoma in mesenteric and retroperitoneal glands 4 have remained well from one to twelve years, and successful cases are recorded also of inguinal and axillary and mediastinal glandular tumours.

Thirty-six cases of apparent cure, including one case of Hodgkin's disease, have been recorded by other men and are quoted by Coley as affording confirmatory evidence of the value of his toxin treatment.

A complete table of the 167 cases is appended to the paper, which also contains descriptions and illustrations of cases in which recurrence has taken place in spite of toxin treatment. The cases observed by

Coley have undoubtedly been well recorded. As evidence of the value of his toxin treatment they certainly merit serious consideration and cannot lightly be set aside.

CONCERNING THE SURGICAL ANATOMY OF THE THYROID, WITH SPECIAL REFERENCE TO THE PARATHYROID GLANDS.

Pool and Falk (*Annals of Surg.*, January 1916) have made a series of dissections with a view to determining exactly the relations of the parathyroid glands and their liability to inadvertent removal in the course of the ordinary operation for excision of one lobe of the thyroid gland. They point out that the practice of leaving the posterior portion of a lateral lobe of the thyroid in order to avoid damage to the parathyroids and recurrent nerve, leads to hæmorrhage and post-operative oozing, and they were anxious to find out, when they undertook their dissections, whether this practice was essential. Twenty-five subjects were examined and the tissues of the neck very carefully dissected and sectioned. Variations in the position of the parathyroids are frequent, but the usual arrangement is that there are two on each side—a superior and inferior. The superior lies in relation to the middle third of the posterior border of the lateral lobe of the thyroid, the inferior parathyroid in relation to the lower third of the posterior aspect of the lobe or lower.

The relations of the parathyroid to the sheath of the thyroid gland, termed the "surgical capsule" in the paper, also varies. In almost half the cases examined the parathyroids lay within the sheath, so that even a complete removal of a lobe in these subjects would have necessarily sacrificed the parathyroids. In the other cases the parathyroids lay without or in the sheath, so that a reasonably careful removal of the thyroid would have spared them.

In the course of the dissections made, Pool and Falk noted that the sheath of the gland divides, as it leaves the posterior border, into a strong, well-defined layer passing to the front of the vertebral column, and a weaker layer passing to the postero-external aspect of the trachea. The recurrent nerve lies between the two layers, and inasmuch as the layer passing to the trachea is thin and easily torn, a complete extirpation of a lateral lobe of the thyroid undoubtedly exposes the recurrent nerve to more risk than if the posterior portion of the lobe is left.

The results of the dissections went to show clearly that the practice of leaving the portion of the lateral lobe of the thyroid, in the effort to spare the parathyroids and recurrent nerve, is based on sound reasons, and that it is the method of choice. The paper is illustrated by a number of drawings showing the relations of the parathyroids, and is of interest to those concerned with the surgery of the thyroid glands. J. W. S.

OBSTETRICS AND GYNECOLOGY.

UNDER THE CHARGE OF

A. H. F. BARBOUR, M.D., AND J. W. BALLANTYNE, M.D.

NEOPLASMS IN OBSTETRICS AND GYNECOLOGY.

NEW growths of the reproductive organs may be of purely gynecological interest; on the other hand, in their effects and even in their origin they may be related to obstetrics. Myomata of the uterus may in one patient be dealt with quite appropriately by the gynecologist, whilst in the case of a woman near the full term of a pregnancy the presence of such tumours may call for Cæsarean section and the obstetrician. Again, a sarcoma of the uterus may seem to stand outside the confines of obstetrics completely, but a chorio-epithelioma cannot, in view of the knowledge which is now possessed by the pathologist respecting its pathogenesis, be dissociated from the consideration of previous pregnancies. The division between obstetrics and gynecology is artificial at best, and is seen to break down in some instances.

Dr. John Olow of Lund, in Sweden, has made an inquiry into the simultaneous presence of myomata and malignant new growth, and into the bearing which this co-existence of innocent and malign tumours may have upon the treatment of the former (*Arch. mens. d'obstét. et de gynéc*, 1915, ann. iv., No. 10, p. 369). Following up the observations of Essen-Möller and Troell at Lund, Olow has examined with the microscope all uteri removed on account of myomata. He has investigated the growths themselves, the mucous membrane of the uterus, and the extirpated ovaries. There were 154 cases of myoma operated on in four and a half years: in 9 of these myomatous polypi were extirpated, and in the 145 remaining cases either supravaginal amputation or complete extirpation of the uterus was performed. In 7 of these cases the microscope demonstrated a sarcomatous transformation of the myoma, and in one instance a sarcoma developed a year later in the portion of the cervix left after the operation (supravaginal hysterectomy). In other words, the microscopic examination showed that not less than 5·2 per cent. of myomata operated on were complicated by malignant growths. This percentage of malignancy is higher than that recorded by most operators; indeed from a consideration of Miller's collected lists the average works out at just under 2 per cent. (1·96 per cent.). This difference may in part be explained by divergent views as to the characters of myosarcomata and multicellular myomata, in part by varying interpretations given by histologists, and in part by a more or less rigid rule for the examination of every growth, even the least suspicious, by the microscope. Olow gives details of the eight cases referred to, and of five others which seemed to throw light upon the subject. From these associations of myomata with malignant growths it quite clearly follows that one must reconsider the preference usually given to subtotal as compared with total hysterectomy in fibroid cases. Further, the fact has a bearing on the treatment of myomata by radium. At first radium was reserved for the inoperable cases of myoma, but recently the tendency has been to extend its employment to operable cases too. Olow is not an enthusiast regarding the good effect of radium upon malignant growths of the uterus—he admits its value as a palliative means and to prepare for operation, but he lays down the dictum that malignant growths which can be extirpated should be extirpated—and he is of opinion, therefore, that before radium is employed in the case of a myomatous uterus a careful examination should be made to exclude, if possible, the co-existence of malignancy. He also admits that it is extraordinarily difficult to exclude malignancy in these cases of myomata. It would almost seem, although Olow does not go so far as to say so, that the safer plan is to operate first and to discuss the radium treatment later. Another fact of some importance which would seem to emerge from Olow's statistics, taken along with M‘Donald's (in 1909) is that the co-existence of myomata with sarcomata increases in frequency with the woman's age. With regard to the question of leaving the ovaries the author thinks that the risk of co-existence of malignancy with myomata is such that in all women within a few years of the menopause these glands should be completely extirpated. In one of the cases reported by him (a woman of 50 years) cancer occurred in the left ovary, which had been left after the operation of panhysterectomy had been carried out.

Dr. X. O. Werder (*Amer. Journ. Obstet.*, 1915, lxxii. 999) has analysed 220 consecutive cases of malignant growths of the uterus, and has found that 12 of them (or 5·4 per cent.) were instances of sarcoma. Of the remaining 208 cases of carcinoma 152 affected the cervix and 56 (or 26·9 per cent.) the corpus. He found that the complication of fibroid tumour (myoma) with carcinoma and sarcoma was so frequent that he had made it a rule for a number of years, especially in women past the climacteric, either to curette, or, of late years, to open the cavity of the uterus to make sure that no malignant complication existed. He records the case of an unmarried woman, 46 years of age, in whom for some reason this precaution was omitted, and a supravaginal hysterectomy carried out. After the operation the uterus was opened and a well-marked carcinomatous change was found at the fundus: but it was then too late to remove the cervical stump. No malignant development had taken place, and Dr. Werder was inclined to hope that since the malignant growth was far removed from the cervix the latter might remain free. At the same time he was of opinion that it should be made a constant rule to examine the uterine cavity in all women in whom a hysterectomy is made for fibroids, and who are near or within the climacteric age, before closing the peritoneal cavity.

Dr. Geo. W. Outerbridge (*Amer. Journ. Obstet.*, December 1915, lxxii. 925) is of opinion that the chorio-epithelioma is a tumour whose relation to a previous pregnancy has been so conclusively demonstrated (save in the rare cases of chorio-epitheliomatous tissue in complex teratomata), that the presence of a definite chorio-epithelium is universally accepted as indubitable evidence of the occurrence of a gestation at some previous time. Part of the problem, however, remains unsolved; it is not known how long fœtal elements from the gestation may lie dormant (and yet potentially active) in the mother's tissues before giving rise to the malignant growth known as the chorio-epithelioma. In the large majority of cases the growth occurs within a few months or not more than a year after the normal or the molar pregnancy or the miscarriage which is regarded as causative; cases in which a longer interval has elapsed have generally been treated with suspicion. Outerbridge, however, describes a case in which eight years and a half after the last pregnancy a vaginal chorio-epithelioma developed in a woman of 43 years of age; her uterus was unaffected. He is of opinion that the case is not incredible, and founds his view upon the observation by Ries of well-preserved chorionic villi in the veins of a myomatous uterus removed eighteen years after the last pregnancy. He refers also to Polano's statistics, in which are recorded ten cases of chorio-epitheliomata, occurring from five to ten years after the previous pregnancy, and one case in which the latent period was thirteen years. Outerbridge draws the conclusion that, whilst in the vast majority of cases all fœtal elements are destroyed by the maternal tissues within a comparatively short time after the termination of pregnancy, in some exceptional instances they may remain dormant either at the placental site or elsewhere in the mother for months or years, and then be stimulated by some unknown agency to malignant proliferation. The time of their development also may be after the menopause. The practical bearing of the subject is that the absence of the history of a recent pregnancy must not suffice to warrant the exclusion of chorio-epithelioma in the presence of symptoms which suggest the presence of the growth, not even in an elderly woman past the menopause.

Dr. Ben R. M'Clellan (*Amer. Journ Obstet.*, December 1915, lxxxii. 1014) has reported what he regards as a case of atypical chorio-epithelioma or syncytial endometritis, *i.e.* an infiltration of the uterine musculature with large acidophilous mononuclear cells, known as syncytial wandering cells. The patient was 25 years of age, and had had three children; she then suffered from a miscarriage at seven months, followed by poor health and persistent anæmia; and later there was a miscarriage at three months. As it was thought some tissue had been left in the uterus, curettage was twice performed. On the first occasion the scraping was not examined microscopically, but on the second it was found to contain typical wandering syncytial cells. Soon afterwards she suffered from paroxysms of coughing accompanied by expectoration, and in the sputum were large mononuclear cells identical with those found in the uterine scraping. Ultimately the patient recovered completely. The writer is of the opinion that the condition which he describes is much more common than has been supposed; he thinks that the impoverished state of the blood may have had something to do with its causation, and he pleads for a more careful examination of all scrapings removed by the curette.

Dr. John Norval Bell (*Amer. Journ. Obstet.*, December 1915, lxxii. 1002) has recorded a curious case of myofibroma complicating a pregnancy. The patient was 31 years old, and had been married for four years. She had aborted at the third month soon after marriage. When Dr. Bell saw her she was six and a half months pregnant, and had for two weeks been suffering from acute abdominal pain affecting especially the right lower quadrant and requiring opiates. The pain became still more severe, and an exploratory laparotomy was proposed and accepted. An eroded spot was found near the right cornu of the uterus on its anterior surface; it overlay a growth imbedded in the wall. The growth, which was found afterwards to be a hyaline leiomyofibroma, was enucleated with some difficulty, for it had no well-defined capsule. Abortion occurred during the following night, but the woman made a good recovery. In the discussion which followed the reading of Dr. Bell's paper (at the meeting of the American Association of Obstetricians and Gynecologists in Pittsburgh) different views were expressed regarding the wisdom of performing myomectomy in pregnancy.

Another remarkable case of a fibroid tumour complicating gestation was described by Dr. O. G. Pfaff (*Amer. Journ. Obstet.*, December 1915, lxxii. 1018). The patient was a coloured woman, aged 35, and a multipara. She complained of pelvic uneasiness and backache, and on examination was found to have two large swellings attached to the uterus, and these were diagnosed as fibroids. The abdomen was opened and supravaginal hysterectomy performed, the left tube and ovary being left. The specimen was examined and was discovered to consist of two swellings; the lower and larger one was a submucous fibroid bulging into the cavity of the uterus, whilst the upper and smaller one was the skull of a partially macerated fœtus. The pregnancy had evidently been interrupted some months, perhaps years previously, and the fibroid had both effectually barred the expulsion of the uterine contents, and had also apparently prevented infection reaching the dead fœtus.

It has often been stated that removal of both ovaries in pregnancy is certain to induce abortion; but Dr. Le Roy Broun's observation, communicated to the New York Obstetrical Society in October 1915 (*Amer. Journ. Obstet.*, 1915, lxxii. 1026), demonstrates that this rule has exceptions. The patient was 30 years old, had been married for two and a half months, and had not menstruated since marriage. There was pain in the lower part of the abdomen and some signs of peritonitis. A swelling was detected posterior to the uterus. The abdomen was opened, and a tense ovarian dermoid cyst with a twisted pedicle was removed. A second dermoid of the other ovary, lying behind the uterus, was also taken away. The appendix vermiformis and the Fallopian tubes were likewise removed. The woman made an uneventful recovery, her pregnancy proceeded uninterruptedly, and it had reached the fifth month at the date of reporting.

J. W. B.

LARYNGOLOGY, OTOLOGY, AND RHINOLOGY.

UNDER THE CHARGE OF

A. LOGAN TURNER, F.R.C.S., AND J. S. FRASER, F.R.C.S.

SOME RECENT OBSERVATIONS ON THE ETIOLOGY OF OZÆNA.

THE outbreak of the European war, while it terminated the international collective investigation into the etiology of ozæna, has not prevented individual observers from continuing their researches into the causation of this distressing nasal condition. The problem is one which has attracted the attention of rhinologists for many years, and it still remains a field for careful research.

In 1899 Perez of Buenos Aires isolated and described an organism which he termed the *coccobacillus fœtidus ozœnæ* and which he believed to be the cause of ozæna. He claimed that the bacillus existed normally in the nasal passages of dogs, that it greatly increased during attacks of distemper, and that the dog was capable of spreading the disease. In 1913 Perez again brought his views before the notice of the profession. It was natural, therefore, that the attention of pathologists should be turned to this aspect of the subject and that further work should be forthcoming in connection with the claim which he had brought forward.

J. P. M'Gowan, a recognised authority upon distemper, has criticised the position taken up by Perez with regard to the transmission of ozæna from dogs to human beings (*Journ. of Laryngology*, London, February 1915). He justly points out that if a large number of cases of ozæna result from infection of human beings by dogs, one would expect that the disease would be specially common amongst those who are intimately associated with the dog, such as dog breeders and dog fanciers, kennelmen, huntsmen, etc. We have no clinical evidence that such is the case. The former further points out that while one does not doubt that Perez may possibly have found his organism in dogs' noses, attention may be directed to the fact that the organisms which he (M'Gowan) has described as the cause of distemper occur frequently in the nasal cavities of *apparently* healthy dogs, and without exception and in large quantities in dogs suffering from frank distemper. Further, he states that this organism when examined hurriedly might easily give the impression that it was the same as that described by Perez, though in reality it is very different. M'Gowan describes in detail in his paper the various bacteriological distinctions between the organism of Perez and the organism of distemper.

Another weak point in Perez's argument in favour of the dog being the transmitter of ozæna to man occurs in the following sentence:—"The coccobacillus which I have found in ozæna secretion exists normally in the nasal cavities of the dog and increases in quantity in animals that are ill with distemper" (Perez).

M'Gowan in his paper upon distemper has shown that dogs apparently well and exhibiting all the signs of health may have the distemper bacillus in their nasal secretions. Such dogs, however, are not really well, for their rectal temperature is slightly raised, as special examination will show. Perez states that after the injection of his organism into the ear vein of rabbits, he obtained a purulent rhinitis associated with the presence locally of his organism. M'Gowan's observations show that distemper, called "snuffles" or "snifters," associated with the presence of the bacillus in varying degrees of severity, occurs in several species of animals, including rabbits, which are specially subject to it. In the absence, therefore, of proof to the contrary, one is justified in provisionally assuming that the rabbits used in Perez's experiments were suffering from distemper—it may be in a very mild form—and that cultures made from the nasal discharges, subsequent to intravenous injection, revealed the presence of the distemper organism, which may be mistaken in a more or less rapid examination for the *coccobacillus ozænæ fœtidus*. M'Gowan suggests, therefore, that before it is definitely accepted that ozæna is a disease of dogs capable of transmission to man the questions arising out of the resemblance of Perez's organism and the organism of distemper should be further investigated.

The results obtained by Perez have been confirmed by Hofer of Vienna, who believes that the coccobacillus is the true cause of ozæna (*Berl. klin. Woch.*, No. 52, 1913). In association with Kofler he has used a vaccine prepared from the Perez organism, and he has reported improvement in crust formation and fœtor and a general subjective improvement in seven out of ten cases. In connection with the vaccine treatment of ozæna from the Perez bacillus, cases were shown at the meeting of the Scottish Otological Society in June 1914 by Drs. Brown Kelly and I. J. Smith. In some cases the vaccine had exercised a specific action on the nasal affection by diminishing or removing the fœtor liquefying the secretion and lessening or checking the crust formation. Some of the cases, however, had relapsed, so that the ultimate effect of the vaccine was still doubtful. Smith stated that if a culture of Perez's bacillus was injected into the ear vein of a rabbit the animal died, and on sectio the bacillus could be isolated from the nose but not from the heart-blood. He had injected two rabbits with a mixed bouillon culture of an ozæna crust. Both died after some days and the bacillus of Perez was isolated from the nose in each case. The heart-blood was in one case sterile, and in the other it contained a few staphylococci. He had never found the coccobacillus in the nasal cavities of normal rabbits.

In the Ear and Throat Department of the Royal Infirmary, Edinburgh, a series of ozæna cases was treated by vaccine of Perez's organism kindly made by J. P. M'Gowan, but the results obtained by this method of treatment were not encouraging.

Murray and Larson of Minneapolis have more recently investigated the subject both experimentally and clinically (*The Laryngoscope*, St. Louis, November 1915). The technic recommended by Hofer was closely followed, and rabbits were injected intravenously with graduated doses of broth cultures made from strains of the Perez bacillus sent from Vienna. The animals were kept under daily observation, but none of them showed the nasal discharge described by Perez and Hofer. The animals were not inconvenienced in any way by the inoculation. They were killed and autopsied in periods varying from seven days to three months, and in no instance was any change detected in the nasal cavities. The strains were then strengthened and further inoculations were carried out. Four animals died; in two some degree of congestion of the nasal mucosa was detected, but very little secretion. The bacillus was found in the heart-blood and the nasal cavities in two cases and from the heart-blood alone in a third. The organisms which were thus recovered were far more pathogenic for rabbits than the original cultures, and cultures were made from the nasal cavities of the animals that survived the inoculation, but in no case was Perez's bacillus recovered.

Murray and Larson experimented further by incubating cultures from the crusts removed from the nasal cavities of their ozæna patients, but they were never able to isolate any organism which could be identified as the Perez bacillus. They further inoculated the ear vein of rabbits with cultures from the crusts taken from patients. No nasal discharges developed in the rabbits. Cultures made from the heart-blood of the inoculated animals failed to reveal the Perez bacillus. Serological experiments were also carried out, but in no single instance was there an agglutination reaction. In these various respects, therefore, their results failed to confirm those obtained by Hofer.

Turning to the clinical aspect of the subject we find that the American observers carried out vaccine treatment by means of the Perez organism in twenty of their patients. Twelve of these were under treatment from three to eight months, and upon these they report. Doses varying from 50,000,000 to 500,000,000 were administered at intervals of seven days. No other treatment, either local or general, was carried out. Improvement was obtained subjectively and objectively in a proportion of the cases. There was undoubted objective improvement in crust formation in two cases. There was subjective improvement in fœtor and in the dry pharyngitis in a large proportion of the cases. A sufficient length of time had not elapsed since the cessation of treatment to enable them to state whether the improvement obtained was permanent and whether it could be considered that a cure was effected in any case. While clinical results were regarded as encouraging in some instances they did not believe that the clinical evidence was sufficient to warrant the belief that the Perez bacillus was the true cause of ozæna, and the literature will show that equally good results have been obtained by other observers who have used different vaccines in the treatment of ozæna cases.

It is evident from this short review that there is still further work to be done in connection with the bacteriology and causation of ozæna.

A. L. T.

INFECTIOUS DISEASES.

UNDER THE CHARGE OF

CLAUDE B. KER, M.D.

Serum Treatment of Cerebro-spinal Meningitis.

The greatly increased incidence of this disease in this country since the beginning of the war has made the question of the value of serum treatment one of considerable importance. A large number of papers have been published, some referring to very small numbers of cases, others to cases collected from various sources, and in many of them, perhaps indeed in the majority, serum treatment has been reported to be disappointing or useless. This is so entirely contrary to the experience of Robb, myself, and others in the epidemic of some years ago that an article by Netter (*The British Journal of Children's Diseases*, December 1915) may be welcomed as emphasising that the only real treatment of cerebro-spinal meningitis is that with anti-meningococcal serum. Netter reports the results of the treatment in a series of 226 cases, all under his own care, and of which 45 occurred in the first half of 1915 and therefore were presumably of the type of disease at present existing. This latter group he considers was of at least average severity and indeed showed a greater proportion of extra meningeal localisations than his earlier cases, and also more frequently a meningococcal septicæmia.

The gross mortality of the 226 cases was only 27·4 per cent., a most remarkably successful result. Netter reduces this considerably by making certain deductions of patients who died within 24 hours and so forth, but we cannot regard such deductions as justifiable in the case of an acute infection which is not infrequently fatal in a few hours after the onset, and the gross mortality rate seems to be quite striking enough without such corrections. Flexner's figures show a percentage mortality of 30·9 in 1294 cases, and Netter estimates the mortality before the use of serum as 48·5 per cent. for sporadic and 83·3 per cent. for epidemic cases. He lays emphasis, quite justly, on the high percentage of infants (34) in his own series, for it is generally admitted that the disease is exceptionally dangerous at this early age, and his results appear all the more remarkable in consequence. The gross mortality for the 1915 cases was 24·4 per cent. of the 45 treated. Of the 34 patients who recovered, 24 improved rapidly and 10 slowly. Emaciation was never observed. Permanent deafness persisted in three patients, in all of whom it was already present before the first injection of serum was given. One child who was seized with sudden blindness at the onset of meningitis, without appreciable changes in the eye, recovered her vision the day after the first injection. Intra-articular injections caused a rapid cure of suppurative arthritis, and intravenous injections were apparently responsible for the complete recovery of a child with vegetative endocarditis.

These brillant results can be doubtless attributed to the method chosen for administering the serum—that is to say, daily injections for the first three days at least and more if the fluid still contained meningococci. The advantages of this procedure were recognised in Belfast and Edinburgh in the 1907 outbreak, and it is almost certain that many of the recent failures to obtain results with serum have been due to neglect of the principles at that time clearly laid down by Robb, Dunn, and others.

Netter's figures also show the importance of early injection. Of 13 patients treated in the first three days of their illness only one died, and that from a tubercular broncho-pneumonia. The conclusion is that bacteriological findings should not be waited for, but that serum should be injected in every case in which turbid fluid is found in the spinal canal. On the other hand, Netter believes that if there is a reasonable suspicion of the disease being present, even clear fluid should not necessarily negative serum treatment, as one of his cases showed lymphocytes only in the fluid.

The serum to be used is naturally a question of the highest importance. So far as I can judge personally the serums obtainable in this country are not acting nearly as well as that of Flexner did in the last outbreak. Netter used for his earlier cases the serums of Flexner and of Dopter, both of which were admittedly highly efficacious. For the more recent cases he employed a mixed serum, two-thirds of which consists of anti-meningococcal serum and one-third of Dopter's anti-parameningococcal serum, and also a polyvalent serum from the New York Laboratory of Hygiene. He points out that the recognition of the parameningococcus explains many cases of failure of serum treatment, and advises that a polyvalent serum should always be used. This, I think, is very desirable, when it is possible, as my experience in 1907 was that Flexner's serum, while ideal for epidemic cases, absolutely failed in those of the sporadic type, and was incapable even of agglutinating their cocci. It is to be hoped, therefore, that we will be able to obtain in this country also a serum prepared from animals immunised against a large number of strains, both of the meningococcus and the parameningococcus. With such a preparation and with its systematic employment on successive days, until no cocci can be found in the spinal fluid, it is not to be doubted that results equal to Netter's will be secured. In the meantime, many workers have been content to inject every two or three days, or have stopped injecting on a temporary improvement of the patient, and have then concluded that, after all, lumbar puncture is as useful as serum treatment.

TREATMENT OF TYPHUS FEVER.

Escluse (*La presse médicale*, 11th November 1915) reports an interesting experiment in the treatment of this fever by means of the intravenous injection of the blood of convalescents. The blood from a convalescent, on the eighth or tenth day after his crisis, was drawn into a syringe, containing a pinch of citrate of soda to prevent coagulation, and at once introduced into the vein of the patient. No accident occurred, so the method was regarded as satisfactory. Only three cases were treated, and all were considered in a desperate condition at the time of the first injection. The amount injected as a dose was 10 c.c. of blood, and one patient received three such doses in 24 hours, and six in all. Two of the three patients made good recoveries. Escluse gives the charts of the cases, which are very interesting. Curiously enough, in all three the first injection was not given until the crisis was complete, or nearly complete, so far as the temperature was concerned. In all the cases, however, the pulse and respirations had remained very rapid, and this want of correspondence, together with the intense toxic symptoms, was apparently regarded as the indication for interference. One cannot help thinking that an earlier use of the treatment would have tested its efficacy better. It would, for instance, have been interesting to see if the injections precipitated the critical change. It is, however, difficult to resist the conclusion that they were of considerable value, even at so advanced a stage of the disease. For obvious reasons, nevertheless, treatment of this kind can never be generally employed. Similar experiments have been made with scarlet fever and cerebro-spinal meningitis, but, owing to the difficulty of procuring blood, have never been carried out on a convincing scale.

RESULTS OF VACCINATION AGAINST TYPHOID FEVER.

Tournade (*La presse médicale*, 25th November 1915) discusses the incidence of typhoid fever among those inoculated against it. His observations, made at Verdun, refer to 142 patients admitted suffering either from typhoid fever or fever of an allied type. All the men had received two or more inoculations. Tournade did not identify the causal micro-organisms by means of blood cultures, but states that in the laboratories of the First Army it was found that 75 per cent. of typhoid infections were due to paratyphoid organisms; and he, therefore, assumes that a similar proportion of his cases might reasonably be regarded as cases of paratyphoid fever. In 26 instances the fever commenced within three weeks of the inoculation, and infection had therefore probably taken place previously. Tournade does not suggest that the patients may have been infected during a negative phase, which might well have been the case, and which would not have in any way detracted from the value of inoculation as a practice. He mentions the interesting fact that, of 749 soldiers straight from the trenches presenting themselves for inoculation, he found no less than 67 had a temperature of over 100·5°, and that 8 of these had actually typhoid fever. He points out with justice that these men, if inoculated, would have been regarded as examples of the risk of inoculation.

Of the 142 men who suffered from either typhoid or paratyphoid fever, 76 had been inoculated twice, 36 thrice, and 30 four times. The general death-rate was low, 7 per cent., a very moderate figure for men straight from the fighting line. This points either to a high percentage of cases of the milder, or paratyphoid, infection, or to the beneficent action of an inoculation which was not entirely protective. Of the 30 men inoculated four times none died.

Tournade concludes that protection is not absolute, just as the protection conferred by a previous attack of the disease is not absolute. He also refers to the bacteriological results of Lippman and Pénau, who found that among non-inoculated subjects the proportion of typhoid to paratyphoid cases is two to one, whereas in the inoculated the proportion is one to four.

A similar study of the question has been made by Rimbaud (*La presse médicale*, 11th November 1915), who was able to make a more thorough investigation of his cases, cultures from the blood being made in every instance. Of 203 patients inoculated from one to four times, the bacillus of Eberth was found in 51, the paratyphoid A in 106, and the paratyphoid B in the remaining 46. Of the 51, only 10 had received the four inoculations demanded by French practice. Moreover, the protective effect of inoculation was observed to be greater in proportion to the larger number of injections. Rimbaud treated 656 men for various forms of typhoid infection. Of 222 who had never been inoculated, 50·9 per cent. suffered from genuine typhoid fever. Of the inoculated men, on the other hand, 19 per cent. only of those who had been inoculated once showed the bacillus of Eberth, 16 per cent. of those twice inoculated, and 11·6 per cent. of those thrice inoculated. Of 145 men who had undergone the full course of four injections, only 6·8 per cent. suffered from real typhoid fever. All the remaining cases were instances of one or the other paratyphoid infections.

Rimbaud considers his results show the advisability of four inoculations. In the British service we are content with two, and it will be interesting to see how far our statistics agree with those of the French military surgeons. It is remarkable that we shall owe a great deal of our knowledge of paratyphoid fever to the inoculations undertaken against the more severe disease. As Rimbaud says, very justly, without typhoid inoculation the paratyphoid cases would have passed unnoticed in a terrible epidemic of the true fever. As it is, both the French and ourselves have taken measures to protect the troops against both diseases either by the use of mixed vaccines or by separate courses of inoculations. It is probable, therefore, that we shall hear less of paratyphoid infection during the remainder of the war.

PATHOLOGY.

UNDER THE CHARGE OF

THEODORE SHENNAN, M.D., AND JAMES MILLER, M.D.

Bovine Actinomycosis.

Attention has recently been directed (Griffith, *Journ. Hygiene*, January 1916) to the subject of bovine actinomycosis and its bearing on the public health by the discovery on the part of the health authorities at various ports in this country of large numbers of imported ox tongues showing evidence of actinomycotic infection. A considerable amount of work has been done, both in this country and abroad, upon the pathological condition known as actinomycosis in animals and in man, and it has been shown that the disease, in relation to the causal agent, is not a single pathological entity; but in many respects the etiology of the bovine and of the human disease and the inter-relationship of the two have not been fully elucidated. Griffith examined actinomycotic lesions from a consecutive series of 44 oxen slaughtered in this country, and compared them with those found in 50 specimens imported chiefly from Argentina. The British cases could be divided into two groups, according as the specific granules did not or did contain Gram-staining organisms. The first group, characterised by the presence of granules consisting of clubs without Gram-staining organisms, contained 40 cases. In these the lesions were situated in the cheek, palate, tongue, or lymphatic glands in relation to the mouth and pharynx. From 23 of the 40 cases, cultures of a non-Gram-staining organism were obtained which were identical in their characters on nutrient agar-plates and in shake glucose agar tubes; and 5 of the strains were found identical when tested on a large series of differential media. One of the cultures was inoculated into a calf, and produced a local lesion with the characters of the natural lesion. This first group showed complete identity in the histological features and in the anatomical distribution of the disease with actino-bacillosis described by Lignières and Spitz in Argentina. The bacillus obtained had the characters of the actinobacillus, except that the production of typical granules in the peritoneal cavity of guinea-pigs, described by Lignières and Spitz, was not demonstrated. All the imported specimens which were examined microscopically exhibited the characters of the lesions of the first group, but the causal organism was not obtained in pure culture.

The second group contained the remaining four British cases. The specific granules were composed of clubs and Gram-staining organisms, including branching filaments. The lesions were situated in the inferior maxilla. The investigation of the biological characters of the organisms concerned is still in progress. These results show that actino-bacillosis is widespread in the world, and forms a considerable proportion of the cases of disease in oxen known under the name of actinomycosis.

THE PATHOGENESIS OF SEPTIC JAUNDICE.

Eppinger believed that primary bile stasis was the immediate cause of septic or toxic jaundice, the bile-capillaries becoming blocked and thereby bringing about rupture of these vessels, so that the cause of the condition was ultimately similar to that acting in the case of obstructive jaundice.

Abramow failed to demonstrate any rupture of the bile capillaries, but found extensive albuminous degeneration of the liver cells, and in addition a collection of bile pigment in a large proportion of the liver cells. He blamed an increased production of bile accompanied by decreased power of excretion.

Ogata and Mitamura (*Mitteil. a. d. med. Facult. d. kais. Universität zu Tokyo*, July 1915) examined the livers of four cases of septic jaundice, in which streptococcus longus, staphylococcus albus, and pneumococcus were isolated. In these livers they found marked degenerative changes and autolytic changes, the latter of which they regarded as of post-mortem development. They also noted dissociation of liver cells, vacuolar degeneration, and, in two cases necrosis of the cells, either at the centre of the lobule or throughout the lobule. Bile thrombi were found in two of their cases. The bile in the gall-bladder in all cases was scanty and pale. Albumen was present in the bile in one case. They suggest that the reduced amount and the pallor of the bile indicate a hypo-function of the liver, and the presence of albumen a dysfunction. They found no appearances supporting Abramow's theory. Apart from showing that dysfunction and hypofunction of the liver exist in septic jaundice, they do not consider that their investigations advance our knowledge of the causation of the condition.

ENDAMŒBA GINGIVALIS (BUCCALIS).

A great deal of interest has been shown recently in the relationship of amœbæ to pyorrhœa alveolaris, and amœbæ have been very generally accepted as probably the most important organisms related to that disease as causal agents. This opinion has been supported by the efficacy of hypodermic injections of emetin in treatment of the condition.

It was Gros who, in 1849, first directed attention to the presence of amœbæ in the soft tartar lying between the teeth, and later, Steinberg in 1862, Grassi in 1879, v. Prowazek in 1904, and Lewald in 1907, published descriptions of what was probably the same organism. General attention was directed to the amœbæ and its relationship to pyorrhœa by Barrett in 1914, and later writers have supported his conclusions.

Craig (*Journ. Inf. Dis.*, February 1916) casts doubt upon the correctness of these views, and comes to the following conclusions based upon extensive clinical and laboratory investigations:—

At the present time the only proof we possess of the etiological relationship of endamœba gingivalis to pyorrhœa alveolaris consists in its almost constant presence in the lesions of the disease and in the fact that emetin, properly administered, greatly benefits a large majority of the patients suffering from the disease. There is absolutely no experimental proof of the etiological relationship of this parasite to pyorrhœa, while against this relationship we have the following facts: The occurrence of the parasite in a large percentage of healthy mouths and in the material that can be scraped from the healthy teeth and gums; the occurrence and persistence of the parasite in patients treated with emetin, even when marked improvement in the clinical symptoms has occurred; the absence of the parasite in some typical cases of pyorrhœa; the lack of improvement with emetin shown in numerous instances of the disease although the endamœbæ may disappear: and the fact that emetin acts upon other organisms as well as upon endamœbæ, and the possibility that the improvement that often follows its administration may be due to such action or to a favourable action upon the tissue cells. In conclusion, it may be stated that if one considers carefully the data that have accumulated upon this subject there is but one deduction which can be drawn, and that is that it is more than doubtful that endamœba gingivalis is the cause of pyorrhœa alveolaris, and that it is yet too early to make positive statements regarding the relationship of this parasite to disease.

DIABETES.

One of the most interesting and as yet only partly solved problems in human pathology is that of the relationship of diabetes mellitus to lesions of the pancreas.

Some authorities blame lesions of the islets of Langerhans, the constituents of the pancreas which are believed to produce the internal secretion. Others believe that the main lesion is one affecting its parenchyma—that is, involving its external secretion. It is generally admitted, however, that these lesions are not constantly present in diabetes, and that identical changes may be present in normal individuals, or in individuals who have died from other diseases and in whom none of the recognised signs of diabetes were present during life.

Labbé, Lavastine, and Vitry (*Archives de méd. expér. et d'anat. path.*, July 1914) have conducted important investigations on the subject.

In 37 post-mortem cases taken at random, the pancreas was found normal in only seven cases. Sclerosis of the gland acini was found 27 times out of the 37. Langerhans' islets were normal in 8 cases, and in all the others they showed some abnormal modification.

In 19 diabetics all possible degrees of alteration of the pancreas were seen, ranging from almost complete destruction of the organ by intense sclerosis to almost complete integrity of the parenchyma. The sclerosis was very intense in 4 cases, intense in 4 cases, moderate in 5 cases, very slight in 2, and absent in 4 cases; it was sometimes predominantly perivascular, sometimes pericanalicular, and in two cases it was accompanied by pigmentation (diabète bronzé).

Langerhans' islets were usually scanty, and in some cases they could not be detected at all; but these cases contrasted with others in which, in spite of severe diabetes, the islets were very numerous and of normal aspect.

Nothing clear with regard to forms of transition from islets to gland parenchyma emerged from the investigation. Consequently no appearance, specially characterististic anatomically, was discovered in the pancreases of diabetics. The authors discuss at some length the probable significance of the different lesions encountered.

The following conclusions seemed to be justified :—

1. In some diabetics with emaciation there is frequently almost entire destruction of the pancreas by sclerosis, corresponding to the extensive removal—more than three-quarters—of the gland, which is found necessary for the experimental production of diabetes in animals. These cases can be recognised clinically, not by the intensity of the interference with sugar-regulation (*trouble glyco-regulatrice*), nor by the emaciation, but by the co-existence of external pancreatic insufficiency, and insufficiency of the sugar-regulating mechanism.

2. In some severe cases of diabetes with emaciation the post-mortem examination reveals only minimal pancreatic lesions, often less developed than lesions occurring in non-diabetic subjects. These cases differ from the first group in the absence of external pancreatic insufficiency. All emaciated diabetics are not all pancreatic diabetics. They are relatively frequent, but the true pancreatic diabetics are rarely encountered. If, as certain authors maintain, the pancreas plays a *rôle* in the pathogeny of all cases of diabetes, then the characteristic diabetogenic lesion of the pancreas has still to be revealed.

3. Mild cases of diabetes exist, without loss of nutrition, which are accompanied by advanced sclerosis of the pancreas, much more advanced than in the preceding cases. One cannot then establish a parallelism between the intensity of the lesion and the intensity of the diabetes.

4. One finds in individuals, who have died from different diseases without ever having suffered from glycosuria, lesions of the pancreas affecting the stroma, the acini, and even the islets, and of severe nature. This is further proof that the apparent intensity of the lesions is not the condition necessary for the appearance of diabetic coma.

Pellagra: its Causation and Prevention.

Studies of the prevalence of pellagra at institutions such as prisons, asylums, and orphanages were made, the results of which, in the light of the recent advances in our knowledge of beri-beri, very strongly suggested the idea that the disease was dependent on a diet that was, for some reason, faulty, and that this fault was in some way either prevented or corrected by including in the diet suitable proportions of the fresh animal protein foods and legumes.

Of 209 cases of pellagra observed by Goldberger (*Journ. Amer. Med.*

Assoc., 12th February 1916) at two orphanages during the spring and summer of 1914, not less than 172 completed at least the anniversary date of their attack under observation. In only one of these 172 pellagrins, following the change in diet, was there recognised evidence of a recurrence, though on the basis of experience elsewhere, from 96 to 130 might reasonably have been expected. Nor was any new case observed among the non-pellagrin residents, 168 of whom completed not less than one year under observation.

Of the group of pellagrins on the modified diet at an insane asylum, 72 remained continuously under observation up to 1st October 1915, or at least until after the anniversary date of their attack of 1914. Not one of this group presented recognisable evidence of a recurrence, although, of a group of 32 controls, 15 had recurrences. Pellagra may, therefore, be prevented by an appropriate diet without any alteration in the environment, hygienic or sanitary, including the water-supply.

At an isolated convict camp, previously free from pellagra, with an average population of from 70 to 80 white males, eleven volunteers were segregated and, after a preliminary observation period of 2½ months, placed on an abundant but one-sided, chiefly carbohydrate (wheat, corn, rice) diet, from which fresh animal and leguminous proteins were excluded. At least six of these volunteers developed pellagra. This result would appear to have been brought about by the diet on which they subsisted.

A definite conclusion as to the intimate mechanism involved in bringing about or in preventing the disease by diet cannot be drawn from the available data.

For the practical purposes of preventive medicine it would seem to be of importance to recognise that the pellagra-producing dietary "fault," whatever its intimate nature or however brought about, is capable of correction or prevention by including in the diet suitable proportions of fresh animal and leguminous protein foods.

T. S.

REPORT OF THE ROYAL COMMISSION ON VENEREAL DISEASES.

To the medical reader the *Final Report of the Royal Commission on Venereal Diseases* does not contain much regarding the diseases dealt with that is not common knowledge, nor is there anything of striking originality in the recommendations made towards the diminution of the evils which follow these infections. The Report is of great value, however, in that it draws public attention to facts of vital importance to the well-being of the community, and suggests means of checking venereal disease which are not only eminently practicable but are calculated to secure the object aimed at.

The Commissioners recognise that their Report "must issue at a time when all public activities are preoccupied in fulfilling the manifold needs of war," and that their recommendations may therefore fail to receive the immediate attention which their national importance demands. They rightly insist, however, that the existing conditions increase rather than diminish the necessity of active steps being taken to put their proposals into effect without delay. "All experience shows," they say, "that after a war an excessive incidence of disease is certain to occur, even in districts previously free," and the civil as well as the military population require protection.

They also lay stress upon the needs of the future. "The diminution of the best manhood of the nation, due to the losses of the war, must tell heavily on the birth-rate—already declining—and upon the numbers of efficient workers. The reasons for combating by every possible means diseases which in normal times operate with disastrous effects alike upon the birth-rate and upon working efficiency are, therefore, far more urgent than ever before." . . . "No short-sighted parsimony should be permitted to stand in the way of all means that science can suggest and organisation can supply for guarding the present and future generations, upon which the restoration of national prosperity must depend."

The Commissioners are convinced from the medical evidence led that by early and efficient treatment these diseases could be brought under control and reduced within narrow limits. Recent discoveries have armed the medical profession with means of combating venereal disease which were unknown in the past, and these means should be brought to bear upon every infected person at the earliest possible moment. They are convinced that this object can be accomplished only by the action of the Government. The measures they propose are not drastic and are free from compulsion, and they include extended facilities for bacteriological diagnosis, combined with the provision of adequate and skilled free treatment, the cost of which should fall mainly upon the National Exchequer.

The terms of the reference made to the Commission precluded consideration of the moral aspects of the question, but the Commissioners emphasise the importance of making appeals to the conscience and honour of the community, by religious bodies and by associations formed for the purpose. The growth of temperance and improvements in the housing of the poor are factors which will play a part in reducing the incidence of venereal disease.

The following is a summary of the recommendations of the Commissioners :—

SUMMARY OF RECOMMENDATIONS.

1. Arrangements should be made for the confidential registration of the causes of death.

[It was suggested in evidence by Dr. Stevenson that "the doctor should hand to the relatives of the deceased person a certificate stating only the fact of death. It would be the duty of the doctor to send by post to the registrar a second certificate, on which he would set out the cause of death. This certificate would be confidential, and access to it would only be possible on the order of a Court of Justice."]

2. The Notification of Births Act, 1907, should be made universally operative, and in the notification of still-births a shorter period of pregnancy than 28 weeks should be taken into account.

[Since this recommendation was approved the Notification of Births (Extension) Act, 1915, has been passed.]

3. The Local Government Board should devise a uniform system of records of sickness in hospitals and poor law establishments with the object of securing accurate statistical information as regards the prevalence of disease among persons who receive institutional treatment.

4. Statistics should be kept of the number of patients for whom salvarsan or its substitutes is provided at the public expense.

[It is satisfactory to have the authority of the Commissioners for the fact that "a number of arsenical preparations are now available in this country which give the same excellent results as were obtained from the use of salvarsan and neo-salvarsan. The most important of these substitutes are kharsivan and neo-kharsivan (the preparations of an English firm), and arseno-benzol-Billon and novarseno-benzol-Billon (of French origin), all of which are chemically identical with salvarsan and neo-salvarsan, and galyl (a French product), a compound of arsenic and phosphorus." Other substitutes have since been placed on the market.]

5. All institutions which undertake, with the assistance of grants

from the Exchequer, the diagnosis or treatment of venereal diseases should keep and render available accurate aggregate statistics regarding these diseases.

6. Extended facilities should be made available for the diagnosis of venereal diseases by laboratory methods. The organisation of this service should be entrusted to the larger local authorities (county councils and county borough councils), and should form a part of the provision of laboratory facilities having for their object the prevention, diagnosis, and treatment of diseases in general.

In any schemes framed by local authorities the fullest use should be made of the laboratory facilities at universities and hospitals.

The cost of this service should be met as to 75 per cent. from Imperial funds, and as to 25 per cent. from local rates.

7. Measures should be taken to render the best modern treatment of venereal diseases readily available for the whole community, and the arrangements should be such that persons affected by these diseases will have no hesitation in taking advantage of the facilities for treatment which are afforded.

8. The organisation of these means of treatment should be in the hands of the larger local authorities (the councils of counties and county boroughs). These authorities should, subject to the approval of the Local Government Board, organise and carry into effect definite schemes for dealing with the diseases.

9. Institutional treatment should, as far as possible, be provided at general hospitals, and local authorities should, as the first step in the preparation of their schemes, approach the general hospitals in their areas with a view to making arrangements for treatment.

10. Treatment at any institution included in a local authority's scheme should be free to all. There should be no refusal to treat a patient who is unwilling to go to his own doctor.

11. The treatment afforded at any institution should not be restricted to persons resident in a particular area.

12. Special arrangements, such as evening clinics, should be made for the treatment of out-patients at hours convenient to the working classes.

13. Subject to proper safeguards, local authorities should be empowered to supply salvarsan or its substitutes gratuitously.

14. The obligation should be impressed upon all doctors who treat syphilis and gonorrhœa in institutions or privately to hand cards of instruction and warning to their patients. These cards should be in some such form as those given in the Report, and should be provided at the public expense.

[We recommend that these instructions should be in some such form as the following :—

For Syphilis—

1. Syphilis is a contagious disease ; it can be cured if promptly treated by a doctor.

2. Treatment by quacks, herbalists, or persons advertising so-called Nature cures is likely to lead to disastrŏus results.

3. The infection may last several years. It can be conveyed to others by sexual intercourse, by kissing, or by using the same eating or drinking utensils or tobacco pipes, etc.

4. Treatment should not be stopped until the doctor says this may safely be done.

5. Should signs or symptoms of the disease appear, such as rashes on the skin, sore throat, or symptoms of nervous disease, a doctor should at once be consulted.

6. A doctor should be consulted occasionally, even though there are no symptoms of a return of the disease.

7. Treatment need not as a rule interfere with work or necessitate stay in hospital.

8. No one who has, or has had, syphilis should marry without permission of the doctor; otherwise there is great danger of giving the disease to wife and children.

9. Teeth should be cleaned night and morning. The patient should dress warmly, live simply, and avoid wine, beer, spirits, and other intoxicants.

For Gonorrhœa—

1. Gonorrhœa is a contagious disease contracted through sexual intercourse. Gonorrhœa may be attended by grave consequences, especially if treatment is neglected and the necessary precautions are not taken.

2. Treatment by quacks, herbalists, or advertisers is likely to lead to disastrous results.

3. Sexual intercourse must on no account be indulged in while there is any discharge, even though this may be only slight. If this rule is neglected the condition is made worse. Moreover, there is always danger of communicating the disease.

4. Gleet, a late form of gonorrhœa, associated with a slight chronic discharge, is very likely to communicate the disease to the wife, causing much suffering and sometimes leading to chronic invalidism and barrenness.

5. Care must be taken that the discharge is not conveyed to the eyes. Neglect on this point may lead to injury to eyesight or to blindness.

6. Large quantities of simple fluids should be drunk, but no wine, beer, spirits, or other intoxicants should be taken while the discharge continues, and for some considerable time after it has stopped.]

15. Medical students and practitioners should have access, for educational purposes, to the treatment of venereal diseases at any institution dealing with these diseases as part of a local authority's scheme.

16. In any case in which a local authority refuse to make provision

for treatment, the Local Government Board should be empowered to make arrangements directly with hospital authorities.

17. The expenditure on schemes of treatment should be assisted by grants from Imperial funds. It is suggested that these grants should be equivalent to 75 per cent. of the expenditure incurred by local authorities. The Local Government Board should be responsible for the distribution of these grants, and should lay down the conditions subject to which the grants are to be paid.

18. The provisions of section 22 of the Poor Law Amendment Act, 1867, should be available to secure the detention, where necessary, of poor law patients suffering from venereal diseases. If necessary, the applicability of this section to the case of venereal diseases should be made clear by legislation.

[Two of the Commissioners dissent from this recommendation.]

19. Steps should be taken, wherever necessary, to render the wards in poor law institutions set apart for venereal cases suitable and cheerful. Facilities for the best modern treatment should be provided in these institutions.

20. The means for the diagnosis and treatment of venereal diseases by modern methods should be made available in prisons. Where the medical officer of a prison considers that a local examination of a woman is necessary, it should be made by a woman doctor.

[One of the Commissioners dissents from this recommendation.]

21. Arrangements should be made through discharged prisoners' aid associations or similar bodies for some person to keep in touch with discharged prisoners suffering from venereal disease, with a view to securing that they avail themselves of treatment, and continue the treatment as long as may be necessary.

22. Men in the Navy or Army suffering from venereal disease whose period of service has not expired should be detained until they are pronounced not infectious. If necessary, additional hospital accommodation should be provided. In cases where infectious men are entitled to claim their discharge they should be encouraged to continue their treatment, and, where this treatment cannot be provided at a Service hospital, arrangements should be made for the treatment to be continued at a hospital or clinic working in connection with a local authority's scheme.

23. No system of notification of venereal diseases should be put in force at the present time. When experience has been gained of the operation of improved facilities for diagnosis and treatment, the question of notification should be further considered.

24. The recommendations of the Select Committee on Patent

Medicines regarding the prohibition of all advertisements of remedies for venereal diseases should be put in force.

25. The law should be amended to provide that a communication made *bonâ fide* by a medical practitioner to a parent, guardian, or other person directly interested in the welfare of a woman or man, and with the object of preventing or delaying a marriage with a person who is in an infectious condition from venereal disease, shall be a privileged communication.

26. Statutory recognition should be given to the principle that infectious venereal disease constitutes an incapacity for marriage. The process should be made available for all persons, however poor.

If, under the existing law, the effect of a decree of nullity is to render the children illegitimate, the new statutory enactment should provide that the disabilities attaching to such a condition should not follow.

27. Whether by means of compulsory attendance at a course of instruction in venereal diseases or otherwise, it should be rendered certain that every medical student has adequate practical instruction in these diseases. Every medical student should attend a course of practical instruction in skin diseases.

28. Questions relating to syphilis and gonorrhœa should be systematically set in medical and surgical examinations, so that the knowledge acquired in these diseases by candidates for examination may be tested.

29. More careful instruction should be provided in regard to moral conduct as bearing upon sexual relations throughout all types and grades of education. Such instruction should be based on moral principles and spiritual considerations, and should not be based only on the physical consequences of immoral conduct.

30. In elementary schools detailed instruction in class on sexual matters should not be undertaken.

31. The practice, which has been followed by some head-teachers, of having private interviews with pupils before they leave school, or if they show special need of guidance, in order to give moral instruction and to offer warnings against probable temptations, should be general.

32. Instruction in these subjects should be provided in evening continuation schools and in factories and workshops. For this purpose the aid of properly constituted voluntary associations should be enlisted. A high standard of efficiency and tact should be required in the representatives of any voluntary association employed and the guidance of medical practitioners should be secured.

33. Students in training colleges should be carefully prepared to enable them to deal with these subjects. The best means of giving this instruction should be carefully considered by those who are responsible for these institutions.

34. Every man on joining the Navy or Army should at the earliest

possible period be fully warned of the grave dangers which venereal diseases involve, and the warning should be formally repeated at intervals of not less than a year.

35. The National Council for Combating Venereal Diseases should be recognised by Government as an authoritative body for the purpose of spreading knowledge and giving advice in regard to the question of venereal diseases in its varied aspects.

Educational authorities should use for purposes of instruction only such literature as has received the imprimatur of the National Council.

NEW BOOKS.

The Practitioner's Encyclopædia of Medical Treatment. Edited by W. Langdon Brown, M.D., F.R.C.P., and J. Keogh Murphy, M.C., F.R.C.S. Pp. xxiii. + 874. London: Henry Frowde and Hodder & Stoughton. 1915. Price 35s. net.

This work is divided into two parts, the first dealing with methods of treatment, the second with agents in treatment. In the former, general methods, the treatment of special pathological conditions, and the therapeutics of the diseases of the various systems are dealt with. In noticing a work whose subject-matter touches more or less the whole range of medicine, it is only possible to refer to a few points in articles selected at random. The book opens with an article on "The Dietetic Factor in Treatment," in which the main theoretical and practical features of the subject are presented in a manner singularly clear and concise. Some of the illustrations are very apt. The whole is characterised by a certain breadth of outlook on a subject which only too readily lends itself to narrower conceptions. Thus under the heading "dietetic restrictions" the fact that a patient may improve under diets apparently the opposite of one another is pointed out, and an explanation suggested in the real therapeutic factor being simply the diminution, on either system of dieting, of the patient's usually excessive amount of food. Some modifications of Lenhartz's diet in gastric ulcer are offered. A deal of stress is laid on the subject of vitamines. The possible existence of similar substances in meat extracts may necessitate the revision of our estimate of the value of beef-tea. In the article on renal calculus the same writer emphasises "the extraordinary effects" of whey in preventing uric acid deposits.

In connection with vaccine therapy a good deal of stress is laid on the value and relatively greater safety of sensitised vaccines. The writer believes in the value of antistreptococcus—not polyvalent—sera in certain classes of infections combined with the use of sensitised vaccines.

Tuberculin therapy is treated with singular conciseness and clarity. The leading principles governing the selection of cases and the respective methods of administration applicable to different types of tuberculous disease are briefly but effectively brought before the mind.

In the article on pneumonia one is pleased to find a protest against the useless and annoying administration of stimulating expectorant mixtures in the early stages. The place of cane-sugar as part of the diet in this disease, and also the value of pituitary extract for allaying tympanitic symptoms, are referred to. The author believes in the use of oxygen in cases occurring in children. As to hypnotics, potassium bromide, chloral, sulphonal, trional, and, above all, veronal, are regarded as unsafe. Paraldehyde, if it acts, is perhaps the best; while morphia, in the early stages—more especially if pain be present—does not deserve all the hard things that have been said about it.

The section on the treatment of alcoholism and drug habits is of interest. In regard to the competing methods of sudden or gradual withdrawal, it is maintained that attention should be directed as to whether the patient has or has not acquired a tolerance. If he has, sudden withdrawal may be unsafe. In dealing with alcoholic cases, the great value of apomorphine is urged.

Considerable attention is given to the subject of urinary antiseptics. It is held that while potassium citrate may relieve symptoms, no effect on bacterial infection is produced by rendering the urine acid or alkaline. Sandalwood oil is specially recommended in staphylococcal infections and in alkaline urine generally.

The second part, dealing with therapeutic agents, forms a valuable section of this work. The leading theories of drug action are explained, and such subjects as absorption, toxicity, standardisation, compatibility, and many others are gone into. Finally the various therapeutic agents are treated of in system.

A good index enhances the usefulness of a book which will no doubt prove of very real value to many practitioners. Especially those at a distance from libraries of recent medical literature will find here much that they desire to know. But to anyone engaged in the practice of medicine this encyclopædia will give very effective help as a book of ready reference for the main lines of modern therapy. The editors are to be congratulated on having succeeded in giving so much information in a form so clear and handy

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Bodily Changes in Pain, Hunger, Fear, and Rage: An Account of Recent Researches into the Function of Emotional Excitement. By WALTER B. CANNON and GEORGE HIGGINSON, Professor of Physiology in Harvard University. Pp. 311. With 39 Illustrations. New York and London: D. Appleton & Co. 1915. Price 7s. 6d. net.

THIS is an admirable investigation of the subject discussed, and is practically an inquiry into the *rôle* of adrenin as a factor in the expression of the emotions.

In the first chapter the affected states influencing digestion are taken up and Pawlow's work is utilised. Many interesting facts are recorded, such as the stimulation of the gastric secretion by the chewing of food prior to its entrance into the stomach, or by its mere odour—a psychical element in the process. How mental emotion may arrest secretion is illustrated by irritating a dog by means of a cat's presence. Sham feeding after this by means of the exhibition of food did not excite much secretion. Application of these facts is made in the case of the human subject.

In Chapter II. the nervous sympathetic mechanism of the visceral nerves concerned in emotions is considered and an excellent diagram given (Fig. 1). The anatomy of the adrenal glands is described. The accessory adrenals, or rests, of the central tract are, however, not mentioned. A simple physiological method of demonstrating the presence of small amounts of adrenin in the blood is described. Blood secured from a cat prior to its being irritated by a barking dog (quiet blood) and afterwards (excited blood) was tested in the way noted above, and it was there found that the small intestine relaxed under the stimulus of the excited blood, showing the presence of adrenin in the latter specimen. It may be noted here that adrenin in *small* doses causes relaxation of muscular fibre. The author attributes these changes in muscular fibre to the adrenin causing glycosuria. Thus if emotional excitement produces glycosuria, we recognise its continued action in man as important in producing this condition, and this is of further importance, as it shows that such glycosuria may pass while the more serious pancreatic glycosuria persists and becomes or is diabetic. This research raises many questions in medicine, but want of space prevents much discussion; one quotation may be given (p. 104): "There is abundant evidence that fatigue products accumulate in a muscle which is doing work, and also that these metabolites interfere with efficient contraction. As Ranke long ago demonstrated, if a muscle deprived of circulating blood is fatigued to a standstill and then the circulation restored, the muscle again responds for a short time to stimulation, because the waste has been neutralised or swept away by the fresh blood." This is of evident importance in human labour, especially in the third stage. Adrenin has also great effect in stimulating the fighting emotions, and thus there is an adrenin stimulus in the gallant charge of fighting men.

The whole book is excellent and suggestive, and well worthy of careful perusal by medical men.

Manual of Surgical Anatomy. By LEWIS BEESLY, F.R.C.S.(Edin.), and T. B. JOHNSTON, M.B., Ch.B. Pp. xiv. + 557. With 164 Illustrations. London: Henry Frowde and Hodder & Stoughton. 1916. Price 12s. 6d. net.

MR. BEESLY and Dr. Johnston have set themselves to provide a text-book on surgical anatomy which will be of use to the senior student and graduate when they seek to study anatomy from the point of view of its application to clinical work. They have rightly planned their book so that it may be used to the best advantage while studying actual dissections, and it is accordingly divided into five sections, dealing respectively with the superior extremity; head and neck; abdomen and pelvis; inferior extremity; and thorax and vertebral column. After the anatomy of each part has been fully dealt with, the bearing of anatomical arrangements and relationships on the location and spread of pathological processes and on the results of injury is pointed out, and the standard operations done on each organ, or in each area, are described with special reference to their anatomical features. Numerous well-chosen and well-executed drawings, diagrams, and radiographs have been inserted to elucidate the descriptions in the text. Intended as it is for use in the dissecting-room, the book has been kept of reasonable size and is easily handled.

A great difficulty facing the authors of a text-book on surgical anatomy making any serious claim to be of teaching value is to determine how much anatomical detail may wisely be omitted, and how much surgery may properly be included. In the book before us the collaboration of a surgeon and an anatomist has proved a happy one, and the authors have displayed sound judgment in their choice of subject-matter. Guided by their experience in teaching they have learned what the student needs to enable him to make the best use of his time and opportunities, and with the resources of a great anatomical department and the inspiration of the best surgical teaching to help them, they have produced a well-balanced book, in which all essential anatomical facts have been included, and their application to surgery fully and clearly brought out.

In a book of uniform excellence it is difficult to select special portions for praise, but we would specially commend the careful descriptions of the anatomy of the joints in its relation to the spread of tuberculous disease affecting the articular ends of the bones. With the help of well-designed diagrams and illustrative radiographs of growing bones, a subject which often puzzles the student is simplified and clearly expounded. Due attention has been paid to the importance of a knowledge of the development of various structures and organs where it has any bearing on the production of malformations and morbid conditions, and while the sections dealing with development are not overloaded with detail, they are full enough to give the reader an intelligent understanding of a subject on which woeful ignorance is often displayed. Mr. Beesly's and Dr. Johnston's manual should take a foremost place as a text-book on surgical anatomy, and may be cordially recommended to students and graduates alike.

The Primary Lung Focus of Tuberculosis in Children. By Dr. ANTHON GHON, Professor of Pathological Anatomy, Prague University. Translated by D. BARTY KING, M.A., M.D., M.R.C.P. Pp. xx. + 172. Illustrations—2 Plates (1 Coloured) and 72 in the Text. London: J. & A. Churchill. 1916. Price 10s. 6d. net.

THIS translation of Ghon's prolonged and thorough investigations into the morbid anatomy of tuberculosis in children is welcome; and especially so as the thesis which these investigations claim to establish is not widely held, nor perhaps even generally known, either here or in the continental schools. The thesis is that in a great majority of cases of tuberculous infection in children the site of invasion is either the lung parenchyma or an adjacent minute bronchus: this forms the primary tubercle within the body, and from it the lymphatic glands on the lymph-channels leading to the hilus of the lung are next infected. A further spread of the disease to other organs may be either by the blood or by the lymph-channels.

It is fairly evident that all parts of this statement are not true, and that in the numerous cases of bovine tuberculosis in the British Islands the site of invasion is not in the respiratory system at all. But the main point impressed is that where the tracheo-bronchial and broncho-pulmonary glands show tuberculous disease, in almost every case a tuberculous focus will be found in the lung parenchyma; and secondly, that the direction of spread is not from gland to lung, but from lung to gland. The evidence led in support of this is very convincing. From a very large mass of material the author has analysed 184 cases of tuberculosis: of these 170 showed both tuberculous pulmonary glands and a tuberculous focus in the lung itself; of the remaining 14, while none showed on microscopical search a lung focus, only in 7 were there indications (and these slight) of a tuberculous infection of the pulmonary glands.

These results confirm previous investigations conducted on similar lines, on an even larger scale and with equal care, by Kuss, E. Albrecht, and H. Albrecht. They seem to completely disprove the theory that tuberculous disease in the lung in the form of phthisis is due to a retrograde lymphatic spread from tuberculous glands at the lung root.

As an investigation into the morbid anatomy of tuberculosis in children, Ghon's work will probably become standard; and it is important that it should become readily accessible to English-speaking students of this question. Dr. Barty King has rendered a good service to medicine in giving this excellent translation.

Back Injuries and their Significance Under the Workmen's Compensation and other Acts. By ARCHIBALD M'KENDRICK, F.R.C.S.E., Edinburgh. Pp. viii. + 173. With 14 Illustrations. Edinburgh: E. & S. Livingstone. 1916. · Price 2s. 6d. net.

LET us say at once that this is one of the most satisfactory books we have had occasion to review for a long time. "Back injuries have a bad reputation," says the author in his preface: we fear that hitherto the literature on back injuries has kept company with the subject. Dr. M'Kendrick has removed this opprobrium, and it will no longer be possible for a medical examiner to take refuge behind the common flippant remark—"If a man says he *has* pain in his back, it is impossible to say he *hasn't*."

The question is admittedly one of great difficulty, but the back is subject to the same kinds of injury as other parts of the body, and is under the same physical and physiological laws. The chief difference lies in the greater complexity of its anatomical structure.

The earlier chapters are devoted to a detailed study of the anatomy of the spine and its supporting ligaments and muscles, with special reference to their architectural and strain-bearing capacities. The sections dealing with the movements of the different segments of the column are particularly valuable, and the accompanying photographs, taken from an expert in physical culture, are most convincing.

The author has had an extensive experience in the examination of workmen suffering from injuries of the back, and the chapter on this subject should be carefully studied by anyone who has occasion to give evidence in a Court of Justice on such a case. It raises, and explains, many of the difficult problems which are apt to perplex the inexperienced. The author makes some original and eminently useful points in connection with the investigation of the movements and measurements of the spine.

Not the least useful and illuminating section is that devoted to the taking and interpreting of radiograms. The author has "recently gone over nearly twenty thousand X-ray plates, and paid particular attention to the lumbo-sacral region," and as a result of what he has observed he utters a word of warning to all medical examiners of back injuries—"Beware of the fifth lumbar vertebra!" which almost invariably presents the appearance of having been crushed. The reasons for this fallacy are clearly explained, and hints are given as to how to avoid the errors into which such an appearance may lead a medical witness.

The concluding chapter on the physics of back injuries clinches many of the clinical deductions.

The book is clearly and pleasantly written, and considering the excellence of the publisher's share in its production is very moderately priced.

There are other subjects which would bear investigation along similar lines to those adopted by Dr. M'Kendrick in this volume. We might suggest, for example, "pain in the sole of the foot," which ranks with "sore back" as a surgical *bête noire.*

The Pathology and Treatment of the so-called Nervous Asthma. By Dr. J. S. Berkart, M.D. Pp. 54. London: Humphrey Milford, Oxford University Press. 1915. Price 2s. 6d. net.

In this monograph Dr. Berkart contributes to the vexed question of the causation of asthma, concerning which there appears to be no finality. The author, who is well known for his strong opinions on the subject, makes a very clear and able statement of his case. He points out that a distinct cleavage should be made between the so-called "bronchial asthma" cases, where some obstacle in the air passages exists, and those which he terms "nervous asthma," where the bronchi are perfectly pervious. In the latter, though there may be a complication of some bronchial catarrh, he states that the resulting exudation is only temporary, easily expectorated, and lacks the characteristic tenacity and presence of crystals and spirals as are present in the bronchial type. In all his cases there was a history of rickets leading to defective development and degenerative changes. Dr. Berkart believes that "nervous asthma" "develops itself on an endogenous neuropathic basis," the condition originating in infancy being usually hereditary and associated with reduced resistance to all irritations, with an increase of the reflexes and exaltation to stimuli.

To explain the occurrence of nerve symptoms, which are sometimes well marked, the theory is advanced either of arrested growth of the nervous system as a result of cranial rickets, or to its impaired nutrition following upon pathological changes in the arteries. The prominence of respiratory disease is accounted for by the result of early inflammatory affections of the air passages—usually infective—and in which recovery was not only protracted but incomplete. Along with this, Dr. Berkart blames the unwise "coddling" of cases, where the patient is brought up in an atmosphere of asthma. With regard to treatment, which the author deals with in a very lucid and rational manner, there is little to criticise with the exception of the rather slighting references made to endonasal surgical measures. Since the brilliant researches of Dixon and Brodie and the clinical results deduced therefrom, all rhinologists are agreed that operations on the nose, whether carried out for gross lesions such as polypi, or for the presence of "asthmogenic" areas, are crowned with success in many of those cases.

ANALYTICAL REPORTS.

INTRAMINE.

(BRITISH DRUG HOUSES, LTD.)

A NEW antisyphilitic remedy has been put upon the market by the British Drug Houses, Ltd., under the name *Intramine.* Chemically it is a sulphur compound—di-ortho-amino-thiobenzene—and it is prepared in the form of a sterile permanent cream, which does not oxidise on exposure to air and is fluid at body temperature. It is administered by intramuscular injection. the contents of an ampoule, which measures 10 c.c., constituting the dose for adults. The cost is 7s. 6d. per ampoule.

MUSTARD LEAVES.

(RIGOLLOT, PARIS.)

We have found the new form of mustard leaves sent out by Messrs. Rigollot of Paris most convenient and efficacious. They measure 5 inches by 3 inches, and only require to be immersed for a few seconds in water before being applied. They are warranted to keep good in any climate and for any length of time, and the cost is moderate.

BOOKS RECEIVED.

Albee, F. H. Bone-Graft Surgery	(*W. B. Saunders Co.*)	25s.
Asch, P., and F. E. Gardiner. Twelve Lectures on the Modern Treatment of Gonorrhœa in the Male	(*Wm. Heinemann*)	5s.
Bruce, H. A. Sleep and Sleeplessness	(*Wm. Heinemann*)	5s.
Clinics of John B. Murphy, M.D., 1915. Vol. IV., Nos. 5 and 6	(*W. B. Saunders Co.*)	—
Coriat, I. H. The Meaning of Dreams	(*Wm. Heinemann*)	5s.
De Lee, J. B. The Principles and Practice of Obstetrics. Second Edition	(*W. B. Saunders Co.*)	35s.
Gould, G. M. A Pocket Medical Dictionary. Seventh Edition	(*H. K. Lewis*)	5s.
Hardwicke, W. W. Sight-Testing made Easy. Third Edition	(*J. & A. Churchill*)	2s. 6d.
Herrick, C. J. An Introduction to Neurology	(*W. B. Saunders Co.*)	7s. 6d.
Hull, A. J. Surgery in War	(*J. & A. Churchill*)	10s. 6d.
Johnson, C. N. A Text-Book of Operative Dentistry. Third Edition	(*Wm. Heinemann*)	25s.
Lane, W. Arbuthnot. Cleft Palate and Hare-Lip. Third Edition	(*Adlard & Son*)	10s.
M'Kenzie, D. The City of Din: A Tirade against Noise	(*Adlard & Son*)	3s. 6d.
Medical Clinics of Chicago. Vol. I., Parts 2, 3, 4	(*W. B. Saunders Co.*)	—
Morton, E. R., and E. P. Cumberbatch. Essentials of Medical Electricity. Third Edition	(*Henry Kimpton*)	6s.
Pilcher, P. M. Practical Cystoscopy. Second Edition	(*W. B. Saunders Co.*)	25s.
Putman, J. J. Human Motives	(*Wm. Heinemann*)	5s.
Robertson, W. G. Aitchison. Medical Jurisprudence, Toxicology, and Public Health	(*A. & C. Black, Ltd.*)	10s. 6d.
Saunders' Illustrated Catalogue of Medical Books. Revised to January 1916	(*W. B. Saunders Co.*)	—
Sluss, J. W. Emergency Surgery. Third Edition	(*Wm. Heinemann*)	17s. 6d.
Smart, Catherine W. Bed-Sores: Their Prevention and Cure	(*Bale, Sons & Danielsson, Ltd.*)	1s.
Smithies, F. Cancer of the Stomach	(*W. B. Saunders Co.*)	24s.
Stengel, A., and H. Fox. A Text-Book of Pathology. Sixth Edition, reset	(*W. B. Saunders Co.*)	—
Thomson, St. Clair. Diseases of the Nose and Throat. Second Edition	(*Cassell & Co., Ltd.*)	25s.

EDINBURGH
MEDICAL JOURNAL.

EDITORIAL NOTES.

The late Dr. Allan Jamieson.

We have to record, with the deepest regret, the death of Dr. W. Allan Jamieson on the 21st April. Although a fuller notice of his career will appear next month, it is only his due that in this column some reference should be made to the death of one who had followed the fortunes of the *Journal* with active interest for nearly twenty years. During all that time he was a valued and a regular contributor, and the Periscope which appears over his initials on another page was written during his late illness, and was probably his last piece of professional work.

This is not the place to attempt any appreciation of Dr. Jamieson's distinction in that branch of medicine which he had made his own, or of the debt the Edinburgh school owes him for procuring its adequate recognition, great as both of these are. The consideration in which he was held by those who knew him rested on more personal qualities—his courtesy, his equanimity, his urbanity. He was a man of almost stoical fortitude, and singularly unvarying in his mood. Temperate alike in judgment and utterance, he willingly gave, though he never obtruded, counsels which were valued because they were deliberate and balanced. He respected the opinions of others, and gained their respect in return; of him it could be said, as of few men, that he had no detractors, and enjoyed widespread esteem. He was a genial host, a good-humoured companion, and a steadfast friend.

The Eradication of Syphilis.

Last month we published a full report of the findings of the Royal Commission on Venereal Diseases, and we return to the subject now for the purpose of emphasising the importance of the medical profession giving this subject its careful attention and taking such steps as may seem wise to make its opinion felt.

Something should be done at once to have the recommendations of the Commission put into force, and to ensure that they do not find the common resting-place of such reports in the pigeon-hole of a Government office. If the proposals of the Commission merely consisted in providing means for the accumulation of statistics or for adding to our knowledge of the incidence or prevalence of the diseases with which the report deals, we should be content to let them lie over at least until the war is ended. They go much further than this, however, and, based upon a full and accurate knowledge of the causation of the diseases, the mode of spread, and the possibilities of successful treatment, they formulate a plan which, if carried out whole-heartedly and in no niggardly spirit, would not only limit the ravages of syphilis and gonorrhœa, but would in a measurable space of time stamp them out. For, with regard to syphilis at least, it must be borne in mind that we have now at our disposal means not merely of mitigating the symptoms and cutting short the period during which these are manifest, but actually, we believe, of curing the disease, so that it not only ceases to affect the individual who has contracted it, but is no longer communicable by him to others.

If there is even a reasonable prospect that the proposals of the Commission, as they are put forward or as they might be modified after consideration by the medical profession, may result in eradicating syphilis to the extent that, say, smallpox or typhus fever has been eradicated, it is the bounden duty of the profession to take every means available to impress upon the Government the necessity of giving effect to them. The initiative is not likely to come from the laity, for obvious reasons. The preoccupation of the public mind with the war and all that that implies, the comparative ignorance of the laity as to the nature and effects of these diseases, and their habitual reticence to take any open cognisance of their very existence, preclude any hope that public opinion will for the present be brought to bear upon the Government.

At first sight it may appear, even to the medical mind, that the matter is one which may safely be left over until peace is restored, but, as the Commissioners rightly point out, the cessation of hostilities is likely after this, as after other wars, to be followed by an increase in the disease, which will have its effects not only on the present but on succeeding generations. The war, therefore, is a reason rather for expediting matters than for delay.

The provisions of the National Insurance Act have already broken the ice by placing venereal diseases on the same footing as other illnesses with regard to medical treatment, and have erected a certain form of machinery by which some at least of the proposals of the Commission might be put into working order. In the larger centres a system of co-operation between the medical practitioners and the staff in charge of the special departments of the hospitals might easily be devised, which would ensure that the modern resources for diagnosis and treatment would be available for all who require gratuitous treatment. The Commissioners have made proposals by which the financial difficulties of such a scheme could be overcome.

It is most unfortunate that this important report should have been issued at a time when the medical profession is already overburdened with work, and can spare little time to consider, much less to initiate, new fields of activity. It may be hoped, however, that the governing bodies of our medical corporations and hospitals will take the matter into consideration, and exercise their powerful influence with the Government to inaugurate a far-reaching scheme in preventive medicine. If carried out thoroughly, the proposals of the Commissioners promise something not far short of the eradication of syphilis.

CASUALTIES.

KILLED in action in France on 9th March, Captain JOHN WILSON, R.A.M.C., attached to the 10th Battalion of the Duke of Wellington's Regiment.

Captain Wilson was educated at Edinburgh University, where he took the M.B. and Ch.B. in 1909, and was in practice at Hamilton till he took a temporary commission in May 1915.

LIEUTENANT NEIL MURPHY GAVIN, R.A.M.C., was killed by a fall from his horse in France on 12th March, aged 42.

Lieutenant Gavin was educated in the School of the Royal College of Surgeons, Edinburgh, and took the Scottish Triple Qualification in 1901, also the F.R.C.S.(Edin.) in 1903.

KILLED in action in Mesopotamia, Captain RONALD WINGRAVE DUNCAN, R.A.M.C.

Captain Duncan was educated in the Medical School of the Royal College of Surgeons, Edinburgh, and took the L.D.S. of that College in 1906, and the Scottish Triple Qualification in 1907.

DIED on service, Captain FREDERICK FRANCIS GERMAN, R.A.M.C., on 30th March, aged 55.

Captain German was educated at Liverpool, and took the L.R.C.P. and L.R.C.S. at Edinburgh in 1881.

DIED on service, Major ERNEST BRICE, R.A.M.C. (T.F.), on 5th April.

Major Brice was educated at Mason College, Birmingham, and took the Scottish Triple Qualification in 1896. He was promoted to Major last year, and was in command of the 3/3rd Welsh Field Ambulance.

DIED on service, Lieutenant JOHN JAMES MACKINTOSH, R.A.M.C., aged 31.

Lieutenant Mackintosh received his medical education at the University of Glasgow, and took the M.B., Ch.B. in 1908. He served with General Botha's forces in the South-West African campaign, and subsequently returned to this country and received a commission in the R.A.M.C.

THE following student of medicine has appeared in a recent casualty list:—

KILLED in France on 8th March, Lieutenant E. H. GOODFELLOW, Royal Field Artillery.

Lieutenant Goodfellow entered Edinburgh University as a medical student in 1913, aged 21.

WAR HONOURS.

HIS Highness the Crown Prince of Serbia has been pleased to bestow the following decorations on members of the staff of the Scottish Women's Hospitals for Foreign Service who stayed behind with the Serbian wounded soldiers in Serbia:—*The Order of the White Eagle, fifth*, on Dr. Elsie Inglis; *The Order of Saint Sara, third*, on Dr. Alice Hutchison and Dr. Holloway.

Decorations were also conferred on members of the Executive Committee in Edinburgh.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.

AT the recent Dental Examinations the following candidates passed the *Final Examination*, and were granted the diploma L.D.S., R.C.S.(Edin.):—William A. Rankin, Glasgow; Aubrey C. F. Barrow, Birmingham; George W. Young, Kidderminster; Hamish Mackay Cranna, Fraserburgh; James L. Farnon, Morpeth; John F. Campbell, Kincardineshire; Douglas M. Mackenzie, Inverness; William A. Mein, Bombay; David C. Lamond, Dundee; Johannes J. de Witt, South Africa; and Henry C. M. Morgan, Stornoway.

TRIPLE QUALIFICATION PASSES.

At the examinations of the Board of the Royal College of Physicians of Edinburgh, Royal College of Surgeons of Edinburgh, and Royal Faculty of Physicians and Surgeons of Glasgow, held at Edinburgh in April, the following candidates passed the *First Examination* :—Thomas A. du Toit, Robert B. Forgan, William H. Kerr, Richard F. Kerr, Lizzie R. Clark, Mayberry H. Carleton, Jung Bahadur Singh, and George G. Field.

The following candidates passed the *Second Examination* : — Albert E. Hempleman, Reginald E. Hopton, Arthur S. Hughes, Eduard L. Adendorff Rebecca Goodman, John K. Steel, William Gibb.

The following candidates passed the *Third Examination* :—Cecil V. Samwell, Ernest E. Bronstorph, George P. de Silva, Henry Shaw, Andrew I. Meek, and Christopher R. C. Moon.

The following candidates, having passed the *Final Examination*, were admitted L.R.C.P.E., L.R.C.S.E., L.R.F.P. & S.G. :—Zachariah Albert Green, James Edward Ainsley, John Cardew Bedwell, Harold Cranwell Aloysius Haynes, Bertram Conrad Haller, James Byrne, James Virgil Reynolds Rohan, Salamon Julius Abrahams, James Blackburn, Charles Harris, Andrew Caston, and Robert Christian Wilson Spence.

CLINICAL STUDIES. IX.—"CROSSED" APHASIA.

By BYROM BRAMWELL, M.D., F.R.C.P.E., LL.D., F.R.S.E., Consulting Physician, Royal Infirmary, Edinburgh: Physician, Chalmers Hospital, Edinburgh.

IN right-handed persons the "leading" or "driving" speech centres are situated in the left hemisphere of the brain, and *vice versá*, in left-handed persons (but probably less constantly) in the right hemisphere. Consequently when marked and persistent aphasia occurs in a left-handed person, the lesion is situated in the right hemisphere, and the hemiplegia is left-sided, and *vice versá*. But in rare and very exceptional cases an attack of *right-sided hemiplegia in a left-handed person is attended with aphasia.* In other words, in exceptional cases, the "leading" or "driving" speech centres are in left-handed persons situated in the left hemisphere of the brain.

In the year 1899 I published a case of this kind and termed the condition "*crossed*" aphasia. The leading features of the case are as follows:—

Male, aged 36, married, admitted to the Edinburgh Royal Infirmary on 9th March 1899, suffering from right-sided hemiplegia and aphasia.

The patient was a left-handed man and had been strongly left-handed from infancy: for everything except writing he was left-handed. None of his near relations or ancestors were known to have been left-handed. He had always written with the right hand, but he could write a little with the left; in order to teach him to write with his right hand, the schoolmaster had strapped his left hand to his side.

The present illness commenced suddenly. He had previously been a healthy man; he had not had syphilis, and had been steady as regards alcohol.

On 6th November 1898, while straining at stool, he was suddenly seized with right-sided hemiplegia and aphasia. For six weeks after the onset he was confined to bed; during this time he appeared to be in a dazed condition, slept a great deal, but seemed to understand what was said to him and to know what he wanted to say.

When admitted to the Infirmary he was a well-nourished, healthy-looking man; height, 5 ft. 7½ ins.; weight, 12 st. 1 lb. He looked bright and intelligent. The temperature was normal; the heart and kidneys were normal. There was very marked right-sided hemiplegia; the paralysis of the face was slight, that of the leg marked, that of the arm complete. The special senses were normal; there was no hemianopsia; the optic discs were normal. There was very marked motor aphasia, some word-deafness, and considerable word-blindness and agraphia. (Full details of the speech functions are given in the original report; see *Lancet*, 2nd June 1899.)

The diagnosis was a vascular lesion on the left side of the brain, probably embolism, but possibly hæmorrhage.

The Explanation of "Crossed" Aphasia.—The point of interest in the case was the "crossed" aphasia, and the question is, How are we to account for the fact that in this left-handed man the "leading" or "driving" speech centres were situated in the left and not in the right hemisphere of the brain?

I will, for the sake of clearness and simplicity, limit my remarks to the motor-vocal speech centre, leaving out of account the sensory aphasia which was also present.

In discussing the subject of "crossed" aphasia it is essential to remember the following facts:—

1. *The Vast Majority of Mankind use One Hand more than the Other, i.e. are either Right-handed or Left-handed.*—Very few persons are actually ambidextrous; indeed, it is doubtful if any person is ever *literally* and *originally* ambidextrous, *i.e.* able to use both hands equally well for every movement and action from early life. Persons who appear to be ambidextrous are, or were, in the great majority of cases, originally left-handed, and their ambidexterity is due to the fact that they have by practice and use trained the right hand to great dexterity notwithstanding the circumstance that they are, in consequence of inheritance or special organic aptitude, left-handed. Persons who are or were originally right-handed are very rarely ambidextrous (though there is no reason why they, like some left-handers, should not be so), for the simple reason that they have not been specially trained to use the left hand as well as the right.

2. *The Great Majority of Persons are Right-handed.*—Right-handedness is the rule, left-handedness is the exception; the exceptions—left-handed people—constitute a small minority (probably about 2 per cent.) of the whole.

Various theories have been advanced to account for this.

According to some authorities it is the result of acquired habit; others think it is the result of hereditary influence or special organic aptitude. Both causes may, without doubt, be effective. Sir Daniel Wilson, after an exhaustive consideration of the whole subject, comes to the conclusion "That the preferential use of the right hand is natural and instinctive with some persons; that with a smaller number an equally strong impulse is felt prompting to the use of the left hand; but that with the great majority right-handedness is largely the result of education."[1]

3. *The Ancestors of the Great Majority of Persons have for Generations been Right-handed.*—There is strong evidence to show that from the earliest times of which we have any accurate records on the point, right-handedness was the rule and left-handedness was the exception. On this point Sir Daniel Wilson states: "So far, then, it seems to be proved that not only among cultured and civilised races, but among the barbarous tribes of both hemispheres—in Australia, Polynesia, among the Arctic tribes of our northern hemisphere at the present day, and among the palæolithic men of Europe's post-pliocene times—not only has an habitual preference been manifested for the use of one hand rather than the other, but among all alike the same hand has been preferred. Yet, also, it is no less noteworthy that this prevailing uniformity of practice has always been accompanied by some very pronounced exceptions. Not only are cases of exceptional facility in the use of both hands of frequent occurrence, but while right-handedness everywhere predominates, left-handedness is nowhere unknown."[2]

Consequently, (a) *heredity,* (b) *congenital organic aptitude, and* (c) *actual acquirement* (*habit, example, social usage, and education*) *all tend to make the great majority of persons right-handed.*

Left-handedness is sometimes hereditary and may run through several generations; but, in many cases, in which a person is left-handed, the left-handedness, though congenital, *i.e.* born with the individual and the result of what may be termed "organic aptitude," is not, strictly speaking, hereditary. Again, the descendants of left-handed ancestors may be right-handed even when the left-handedness has been present in several preceding generations—probably a reversion to the original right-handed condition.

It therefore follows that in right-handed persons the left hemisphere, and in left-handed persons the right hemisphere, is the "leading" or "driving" side (hemisphere) of the brain.

4. *With Rare Exceptions the "Leading" or "Driving" Speech Centres are situated in the Hemisphere of the Brain, which is, so far as the Movements of the Hand are concerned, the "Leading" or "Driving" Side.*—This is a fundamental proposition, founded on the results of clinical and pathological observation, which is acknowledged by all authorities. Consequently, in right-handed

persons the "leading" or "driving" speech centres are, with perhaps rare exceptions, situated in the left hemisphere: and in the great majority of left-handed persons the "leading" or "driving" speech centres are situated in the right hemisphere.

It must, however, be remembered that this statement applies to the condition after the individual has become right-handed or left-handed, so to speak, and after the speech functions have been fully acquired—after the left or right brain has become, in consequence of habit and use as well as inherited tendency or organic aptitude, the "leading" or "driving" side.

There is every reason, I think, to suppose that the cortical centres in the "non-leading" or "non-driving" side of the brain, which correspond to the speech centres in the "leading" or "driving" side of the brain, are possessed of some degree of speech function; in other words, in right-handed persons the cortical centres in the right hemisphere, corresponding to the (active) speech centres in the left hemisphere, are possessed in some degree of speech function. The degree of this activity probably varies greatly in different individuals. It probably also varies with the special function of the speech centre concerned. It is probably greater in the case of the auditory than of the motor-vocal speech centre.

There is no doubt that when a speech centre or the speech centres in the left hemisphere of the brain are destroyed in early life, the corresponding speech centre or speech centres in the right hemisphere can be educated to take up and carry on the speech function. The same thing, without doubt, may also occur in later life, though in later life this substitution and compensation is naturally, in most instances at least, established with more difficulty and with less completeness.

In early life when the child is learning to use its speech centres, the corresponding centres in both hemispheres are probably capable of being trained to carry on the speech function, and are both in some degree active. It is interesting to note in corroboration of this view, as I pointed out many years ago, that the intelligent speech sounds which the young infant first uses are double sounds—baba, papa, mama, bow-wow, etc. This seems to show that in early life the corresponding motor-vocal speech centres in both hemispheres are simultaneously made use of. It is only when one hemisphere (usually the left) assumes a "leading" or "driving" function (in consequence of hereditary influence, organic aptitude, personal acquirement—training, education, use) that the speech centres in one hemisphere (usually the left, because of the right-handedness) assume a definite "leading" or "driving" preponderance.

The bilateral location of the speech functions in the left and right cerebral hemispheres, the varying degree of activity of the speech centres in the two hemispheres in different individuals, and the different degree of activity of the corresponding speech centres of the two hemispheres in accordance with their special functions (auditory, motor-vocal, visual, and graphic) account, in my opinion, for many of the apparent anomalies between the clinical characters noted during life and the pathological lesions observed after death, which have been noted in many of the cases of aphasia which appear to be exceptions to the ordinary accepted theories on the subject.

Acute and complete destruction of the left motor-vocal speech centre, when it occurs in a right-handed man, will, and does, in the vast majority of cases, produce motor-vocal aphasia; while the same lesion, when it occurs in a left-handed man, will not, and does not, in most cases, produce motor-vocal aphasia. Vice versâ, *acute and complete destruction of the motor-vocal speech centre in the right hemisphere of the brain, when it occurs in a left-handed man, will, and does, in most cases, produce motor-vocal aphasia; while the same lesion, when it occurs in a right-handed man, will not, and does not, in the vast majority of cases, produce motor-vocal aphasia*—I mean marked and persisting, and not merely temporary, motor-vocal aphasia.*

Exceptions to these statements occasionally occur. I term such exceptions cases of "crossed" aphasia. In the vast majority of cases of "crossed" aphasia the speech defect is merely temporary and evanescent. It is by no means uncommon for a certain degree of true motor-vocal aphasia—obviously the result not merely of a defect of articulation—to attend the onset of an attack of left-sided hemiplegia in a right-handed person, and probably also to attend the onset of an attack of right-sided hemiplegia in a left-handed person (though from the comparative paucity of left-handed people the opportunity of observing such cases rarely occurs). Cases of *temporary* "crossed" aphasia are, I think, easily enough explained if it be granted, as I have long advocated, that the cortical centres in the "non-leading" or "non-driving" hemisphere of the brain, which correspond to the speech centres in the "leading" or "driving" hemisphere, are possessed of some sort or degree of speech function, which is usually, I think, carried on in conjunction with, and in subordination to, the function of the speech centres in the "leading" or "driving" hemisphere. In cases of this kind the aphasic symptoms usually pass off in the course of a few days. In the following case complete motor-vocal aphasia persisted for three weeks—up to the death of the patient. That case is, however, quite exceptional. The leading features were as follows :—

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* For the sake of simplicity I limit my remarks to motor-vocal aphasia, but the same statement may be applied, though not perhaps quite so forcibly, to the sensory varieties of aphasia.

Left Hemiplegia, due to Embolism of the Right Middle Cerebral Artery, with Complete Motor Aphasia of Three Weeks' Duration, in a Right-handed Person ; Mitral Stenosis ; Second Embolic Attack ; Death ; no Post-mortem. —The patient was a young woman, aged 23, under the care of Dr. Oliver of Oldham. She had suffered for several years from mitral stenosis. She was, and always had been, right-handed. None of her relatives were, so far as is known, left-handed. For three months before the onset of the aphasia and hemiplegia she had suffered from subacute rheumatism (joint affection).

In the middle of April 1902 she had a sudden cerebral attack (embolism of the right middle cerebral artery), attended with *left* hemiplegia and *complete motor aphasia. She remained completely speechless* (except that she could say "*Yes*" and "*No*") *for three weeks.* There was no word-deafness. The left side of the face, left arm, and left leg were paralysed. On 6th May 1902 I went to Oldham to see her, but found that a few hours before my arrival she had had a second cerebral (embolic) attack and had died.

Dr. Oliver informs me that her power of reading was not tested, that she made no attempt to write during the three weeks following the first embolic attack (*i.e.* while she was aphasic) ; that the second embolic attack was attended with deep coma and complete paralysis, followed in the course of a few hours by death.

There was no post-mortem examination.

Cases of "crossed" aphasia are occasionally, though very rarely, met with in which the aphasic symptoms are persistent or permanent. So far as I know, cases of this kind almost always occur in left-handed persons. I am speaking of cases in which there is no reason to suppose that the normal development of the speech centres had been interfered with in early life.

The factors which go to determine whether the "leading" or "driving" speech centres shall be located in the left or in the right hemisphere of the brain seem to me to be chiefly two—viz., (1) heredity or organic aptitude, and (2) personal acquirement (education and habit)—*i.e.* whether the person is right-handed or left-handed; and, speaking generally, I am disposed to think that the latter is, in most cases at all events, by far the more potent of the two. For example, in left-handed persons whose ancestors were right-handed, *i.e.* who inherit no tendency to left-handedness, the influence of the left-handedness (which tends to locate the "leading" or "driving" speech centres in the right hemisphere, which, because of the left-handedness, is in them the "leading" hemisphere so far as the movements of the hand are concerned) will be more potent than the influence of the heredity, which tends to locate the "leading" or "driving" speech centres in the left hemisphere, which in preceding generations was the "leading" hemisphere both as regards the movements of the hand and also as regards the speech centres. Hence, if (*a*) heredity or organic aptitude, and (*b*) personal acquirement were the only factors, the "leading" or "driving" speech centres would, in the majority of left-handed persons, be situated in the right hemisphere.

Whether the act of learning to write with the right or the left hand and the practice of writing after the act of writing has been acquired have any influence in locating the "leading" or "driving" speech centres in one or other—the left or the right—hemisphere of the brain is an interesting question and one which it is perhaps impossible to answer with any degree of certainty. We learn to read and write long after we learn to understand spoken language and to speak, and long after we have become (whether this is the result of heredity, of congenital peculiarity, or of acquired habit) right-handed or left-handed. The fundamental speech centres, as I term them (the auditory and motor-vocal speech centres), are trained and their functional activity is highly developed long before the accessory speech centres (the visual and graphic speech centres), are trained and brought into action. It may therefore, I think, reasonably be supposed that in most persons the location of the fundamental speech centres (auditory and motor-vocal), as the "*leading*" speech centres in the left hemisphere, has already been fixed and determined before the associated speech centres (the visual speech centre and the motor-writing centre) begin to be called into action. In right-handed persons, in whom the location of the fundamental speech centres, as "leading" speech centres, in the left hemisphere has already been determined both by heredity and actual acquirement, the fact that they are taught to write with the right hand (if it has any action at all) will merely confirm and strengthen this localisation. But whether in left-handed persons whose ancestors were right-handed (in whom the fundamental speech centres in the right hemisphere have become the "leading" or "driving" centres in consequence of the preponderating influence of the left-handedness due to actual acquirement or congenital aptitude over heredity) the fact that they are taught to write with the right hand can upset this (prior) localisation—*i.e.* can re-transfer the "leading" speech centres to the right hemisphere—is an interesting and doubtful question.

It seems to me that in left-handed persons whose ancestors have been right-handed, the question whether the "leading" or "driving" speech centres are located in the right or in the left hemisphere of the brain will, at all events prior to the time when they are trained to write with the right hand, chiefly depend upon the fact whether the hereditary influence which favours their location in the left hemisphere or the acquired influence, due to the left-handedness, which favours their location in the right hemisphere, is the more potent; and, as I have already stated, I am disposed to think that, in most cases at all events, the latter factor will be the more powerful. But it is not difficult to conceive that in some cases (left-handed persons whose ancestors were right-handed) these two factors—heredity and actual acquirement—will, so far as the location of the speech centres is concerned, be more evenly balanced than in the majority of persons, and that up to the time when the child begins to read and write the location of the speech centres as the "leading" speech centres in the right hemisphere (even granting that the influence of the acquired left-handedness is more potent than the influence of heredity) will not be so firmly fixed as in the majority of persons. In such cases it is not, I think, unreasonable to conclude that the introduction of a third factor—viz., the learning to write with the right hand, the most highly specialised movement of the hand so far as the speech functions are concerned—may be sufficient to turn the scale and to determine that the "leading" or "driving" speech centres (the location of which up to this point is not very firmly fixed in the right hemisphere) shall be finally located in the left hemisphere.

Hence in cases of "crossed" aphasia in left-handed persons, with the object of trying to throw further light upon this point, it should always be noted whether the patient has been taught to write with the right or the left hand, whether he has been accustomed to write much or little, and whether he is ambidextrous or not. In the particular instance I have detailed above the patient was taught to write with his right hand (his left hand had to be strapped to his side in order to teach him) and had never learned to write or been in the habit of writing with his left hand; hence the third factor, which I have suggested as a possible cause of the location of the "leading" speech centres in the left hemisphere of the brain in left-handed persons, may perhaps in this particular case have come into play and may have finally determined the location of the "leading" speech centres in the left hemisphere. And in this connection it is interesting to note that the late Dr. Dickinson has recorded a case of aphasia in a left-handed man in many respects very similar to my own, viz., right hemiplegia with marked motor aphasia in a left-handed man who was so ambidextrous that although "he was in common phrase left-handed he said he was not to be called so since he used both hands equally well."[3]

Further, this view (the theory that the act of learning to write and the practice of writing with the right hand may, in some left-handed persons, determine the location of the "leading" or "driving" speech centres in the left hemisphere of the brain) seems to be supported by the following case recorded by H. Oppenheim.[4]

A woman, aged 59 years, who had been left-handed since the age of 17 years in consequence of an injury received at that time to the right hand, was admitted to hospital on 23rd September 1889, and died on 6th October 1889. For two years before admission to hospital she had suffered from headache. Fourteen days before admission to hospital, aphasic symptoms (complete word-blindness and agraphia, some word-deafness, and paraphasia) gradually developed. During her stay in hospital she became completely hemiplegic and hemianæsthetic on the left side; left-sided bilateral homonymous hemianopsia was found to be present; and optic neuritis developed in the right eye three days before death. On post-mortem examination a large sarcomatous tumour was found in the right hemisphere. It involved the optic thalamus, the lenticular nucleus, the internal capsule, and extended up to the island of Reil and into the white matter of the occipital lobe. There was no lesion, either macroscopic or microscopic, in the left hemisphere.

This case would seem to show that, at the age of 17 years, the "leading" or "driving" speech centres in a right-handed person may, in consequence of the patient becoming left-handed from injury and disuse of the right hand, be transferred from the left to the right hemisphere. And if this explanation is accepted it seems to lend some support to the "third factor" supposition advanced above.

I am disposed, therefore, to think that some of the exceptional cases in which in left-handed persons whose forefathers were not left-handed, *i.e.* who did not inherit left-handedness, the "leading" or "driving" speech centres are situated, not as one would expect in the right, but in the left hemisphere of the brain, may perhaps be best explained by supposing that in them the influence either of (*a*) heredity, or (*b*) of heredity + the third factor which I have suggested (viz. the learning to write and the practice of the act of writing with the right hand) was, *so far as the localisation of the "leading" or "driving" speech centres* is concerned, stronger than the influence of the (non-hereditary) left-handedness; that is to say, in such exceptional cases the hereditary localisation of the "leading" or "driving" speech centres in the left hemisphere (or heredity so far as the speech centres are concerned + the third factor) have prevented the transference of these (the "leading" or "driving") speech centres to the right hemisphere.

The fact that the motor-vocal speech centre may in a right-handed man be completely destroyed without the production of motor-vocal aphasia, as in a case recorded by Dr. Collier,[5] and in several cases of brain tumour which I myself have reported,[6] does not, I maintain, prove that the "leading" or "driving" speech centres were in such right-handed persons situated in the right hemisphere, *provided that such destruction is a slow and gradual process.* Such cases seem merely to show that the motor-vocal speech centre in the right hemisphere was, in such persons, *after training and education*, capable of taking up and independently carrying on the speech functions when the opposite and, as I believe, the previously "leading" or "driving" motor-vocal speech centre in the left hemisphere was destroyed. I take it for granted (for clinical and pathological evidence seems strongly to support this view) *that the speech centres in one or other hemisphere will always take the lead.*

And here I must emphasise the fact that it is of the greatest importance to draw a distinction between the cases, such as a case which I have recorded (*Brain*, 1898, p. 343), in which the left motor-vocal speech centre was suddenly destroyed, and cases, such as those to which I have just referred, in which the motor speech centre was slowly and gradually destroyed. The explanation which seems to me to afford the best solution of the one (the acute cases) does not, in my opinion (though it may possibly in rare cases be the correct explanation), afford the best solution of the other (the chronic cases).

In those cases in which the destruction is sudden, the most reasonable explanation seems to me to be that the opposite (right, and, I believe, previously "non-leading") motor-vocal speech centre was from the first, *i.e.* immediately after the occurrence of the acute lesion and without any process of training or substitution, sufficiently educated and active to take up and independently carry on the speech function when the normally "leading" or "driving" speech centre in the left hemisphere was (acutely and completely) destroyed. This, for the sake of reference and convenience, I will term the "*highly specialised*" theory.*

In those cases in which the destruction is slow and gradual, *i.e.* by a neoplasm—the most reasonable explanation seems to me to be that *pari passu*, with the destruction of the "leading" or "driving" motor-vocal speech centre in the left hemisphere, the corresponding and hitherto "non-leading" motor-vocal speech centre in the right hemisphere becomes educated and trained, so that even if the destruction becomes complete it is able to independently carry on the function of the "leading" speech centre in the left hemisphere when that "leading" speech centre is destroyed. This I term the "*substitution or compensation*" theory.

REFERENCES.—[1] Wilson, *Left-handedness*, p. 127. [2] *Ibid.*, p. 115. [3] Quoted by Bastian, *Aphasia and Other Speech Defects*, p. 90. [4] Oppenheim, *Archiv für Psychiatrie*, 1890, vol. xxi. p. 139. [5] Collier, *Lancet*, 1899, vol. i. p. 824. [6] Bramwell, *Brain*, 1898, p. 343, Cases VII., IX., and X.; and *Clinical Studies*, vol. iii. p. 157.

[*] It may, of course, be argued that if one grants that in a right-handed person whose ancestors were right-handed the functional activity of the speech centres in the right (non-leading) hemisphere may in rare and quite exceptional instances be so great as to enable them to take up and independently carry on the speech function more or less satisfactorily, but never, so far as I know, quite perfectly, immediately after the leading speech centres in the left hemisphere are suddenly and acutely destroyed, why not go further and grant that they—the speech centres in the right hemisphere of a right-handed man—may in rare and exceptional cases be the "leading" centres. I admit that it is impossible to disprove this possibility, but I submit that analogy and the results of clinical and pathological experience seem to point the other way.

CLINICAL NOTES ON THE RADIOGRAPHY OF THE THORAX IN CHILDREN.

By J. S. FOWLER.

II.*

III. PERICARDIAL EFFUSIONS.

PURULENT, usually pneumococcal, pericarditis is relatively common in childhood, and its diagnosis by physical signs is beset with difficulty. In cases of empyema which are going downhill after drainage, the suspicion that pus is gathering in the pericardium should always arise, and is often confirmed on post-mortem examination. The physical signs, however, are seldom characteristic. *Friction* is very rare; I have only once detected it in a case of purulent pericarditis, and then it was both indistinct and short-lived. *Increased cardiac dulness* is not, as a rule, of much assistance; in some cases it is rendered difficult to estimate by the co-existence of empyema, and in others it is masked by the left lung being adherent along its anterior margin, and thus obscuring the effusion. The chief signs indicative of effusion are feebleness of the heart sounds, increased frequency of the pulse, and evidence of pressure on the left lung—an area of tubular breathing over the infraspinous region. The value of the last-mentioned, however, is much diminished if there has been previously a left-sided pneumonia.

Seeing that drainage offers some, if only a slender, prospect of cure in an otherwise absolutely fatal disease, an early, definite diagnosis is of practical importance. In most cases radiographs settle the question, and if the finding is positive the pericardium should be drained to give the patient a chance.

The following cases illustrate the appearances in simple and purulent pericarditis:—

CASE I.—*Congenital (?) Murmur Detected at* $2\frac{9}{12}$; *Acute Pericarditis with Large Effusion at 4 Years; Very Little Constitutional or Circulatory Disturbance; Rapid Recovery; Disappearance of Bruit.*

John B., aged $2\frac{9}{12}$, admitted 5th July 1913, complaint being swelling of the legs and arms and scanty urine, of about 3 weeks' duration.

Family History.—Good.

Previous Health.—Breast-fed until 11th month, and has had no illness before the *present* one, which began with swelling of the legs and arms.

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* The previous paper appeared in the *Journal* for November 1915.

The child became listless and stopped walking. There has been no pain at all. For the past few days has passed very little urine.

Condition on Examination.—A large, rather flabby, child weighing 34½ lbs. His general appearance suggested the possibility of thyroid inadequacy. The temperature was persistently subnormal. He appeared to be of average intelligence, and the only abnormality detected on physical examination was a loud, rough, mitral systolic bruit, which was not propagated far in any direction.

He was discharged on 17th July, and re-admitted on 23rd September to undergo a course of thyroid. He appeared to benefit by this, and became much more lively and active, but the thyroid was not continued after he left hospital on 4th October. During his stay in hospital the murmur varied in intensity a good deal; it was very much less evident at the time of his discharge than when he was first seen. The *diagnosis* was congenital heart (?).

He was *re-admitted* on 10th February 1915, with the same complaint—swelling of the legs and body—as before.

Since leaving hospital in 1913 has been very well, except for a slight attack of bronchitis last winter. Three weeks ago he seemed to be short of breath, and had some swelling of the right foot. It was not very tender, and the doctor said something was wrong with the bone. A few days later he complained of pain in the knees. He has been confined to bed and has been feverish for the past day or two.

Condition on Examination.—Weight, 45¼ lbs.; temperature, 100°; pulse, 84; respirations, 28. He still shows the same fat, rather flabby, appearance; the skin is dry and harsh; the neck short and thick; and the subcutaneous tissues firm.

The apex beat is in the nipple line; the heart is not enlarged; over the mitral area no murmur can be heard, but there is very distinct pericardial friction with triple rhythm. Notwithstanding the well-marked pericarditis the pulse is comparatively slow (84 to 108); the child sits up and appears in no way distressed.

12th February.—Friction louder, and heard over lower half of sternum as well as at apex.

13th February.—Friction as before. The cardiac dulness extends just to right of sternum and slightly outside nipple line.

16th February.—Radiograph shows a very large shadow (Fig. 1).

18th February.—Friction as before. The temperature sways a little, occasionally up to 100°. The pulse as a rule has been from 96 to 110, never above 120, and the child is bright and anxious to get up. At the root of the left lung there is a small area of distant tubular breathing, apparently due to compression of the lung by the effusion.

20th February. — Friction has entirely disappeared. The cardiac dulness is still enlarged and the sounds are rather faint. Temperature normal, and pulse slower (80 to 84).

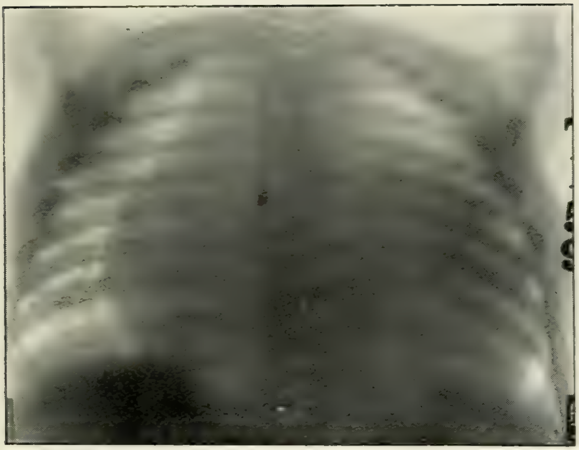

Fig. 1 (Case I.)—[illegible]th February [illegible].

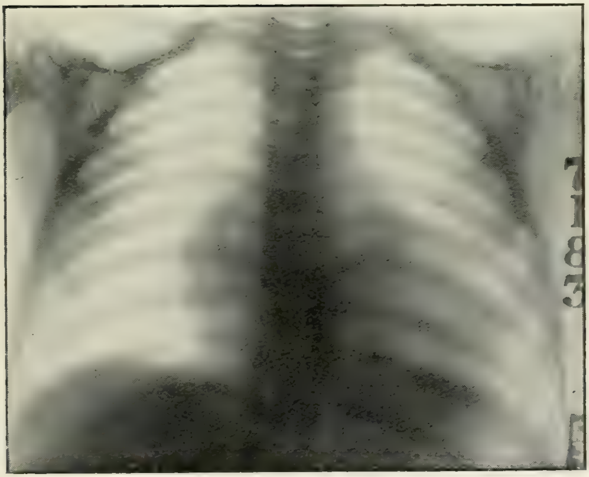

Fig. 2 (Case I.)—[illegible]th February [illegible].

26th February. — Signs have practically cleared up. Pulse, 72. Radiograph shows no effusion (Fig. 2).

8th March.—Discharged cured. He has been running about all day for the last week. The heart sounds are now normal, with no bruits.

The points of interest in the above case are:—

1. The marked contrast between the intensity of the physical signs and the absence of constitutional disturbance. The child was never at all ill, and always wished to sit up and play as usual. I have seen several other cases of pericarditis of this mild type; they are usually only discovered by accident in the course of routine examination, and they have all made a rapid recovery. The cause of the condition is not known. They have no resemblance, clinically, to ordinary acute rheumatic pericarditis. In this patient there was a vague history of pain in the knee, but the mother was not a very trustworthy observer.

2. The previous existence of a loud mitral murmur which had apparently disappeared before the onset of the pericarditis.

3. The rapid development and almost equally rapid subsidence of so large an effusion. The increase in the cardiac dulness gave no idea of the size of the effusion. In fact, on the day before the radiograph was taken there was some doubt as to the presence of fluid in the pericardium, and the reason for the patient being X-rayed was to ascertain whether, in this benign type of pericarditis, effusion occurred, because previous cases of the kind had subsided without definite signs of fluid.

CASE II.—*Left-sided Pneumonia; Small Localised Right Empyema Cured by Aspiration; Signs of Pericarditis, Confirmed by Radiograph; Pericardium Drained; Great Improvement; Subsequent Development of Empyema on Left Side; Drainage; Death Three Weeks Later.*

Harry W., aged $1\frac{5}{12}$, admitted 10th March 1914 as a case of pneumonia which had not cleared up.

Family History.—Another child died of pneumonia; no evidence of exposure to the infection of tubercle.

Previous Health.—Breast-fed until a year old. Teeth at 10 months; walking at 15 months. Chicken-pox at 1 year; measles at 18 months; no other illness until *present illness*, which began with a cold four weeks ago and passed into bronchitis. The doctor attending found a patch of pneumonia which partially cleared, but four days ago the child became worse, became very breathless, and vomited from time to time.

Condition on Examination.—Well-nourished child weighing 22 lbs. 12 ozs. Slightly cyanosed; temperature, 101°; pulse, 156; respirations, 60. No signs of rickets; no facial irritability. *Abdomen* moves freely; spleen palpable. Heart sounds normal; right border under right sternal margin; left, 1½ inches from left sternal margin.

Respiratory System.—Slight cough; movement of alæ nasi. Heart's apex beat in 5th space within nipple line. The right lung showed vesicular breathing with some rhonchi, but no dulness; the left lung showed a patch of dulness with tubular breathing and increased vocal resonance at the angle of the scapula.

Leucocytes, 12,650; von Pirquet negative; urine normal.

Progress.—*12th March.*—Pneumonia extending; there is now tubular breathing at left apex anteriorly as well as at base, and there is a patch of dulness at right base, whence, on exploring, about 1 c.c. of turbid serum, yielding cultures of pneumococci and staphylococci, was withdrawn.

17th March.—The temperature and respirations fell until yesterday, when they again rose. To-day, temperature is again normal, and respirations, 44. The signs of consolidation of the left lung have spread, and on exploration of the right base about half an ounce of pus, containing pneumococci, was withdrawn.

21st March. — Temperature on the whole less; though rising occasionally to 101°, it has been from normal to 99, for much of the time; pulse and respirations falling. Left lung as before; right base clearing.

24th March.—Temperature now normal; pulse, 132; respirations, 32 to 36. The pulse, however, is feeble; and attacks of cyanosis supervene occasionally. On exploration of the right base only a few drops of blood withdrawn.

27th March.—The child is not so well. The attacks of cyanosis have continued; and there is some puffiness of the hands and feet; no albuminuria. The pulse-rate (136) is not increased, but it is feeble, and the heart-sounds are faint. The præcordial dulness is slightly increased to just outside the right sternal margin, and to 1¾ inches outside left sternal margin. The signs at the base of the left lung are no more marked.

29th March.—The child appears a little better; the temperature has remained down, and pulse and respirations are slower. The signs in the lungs are less evident, but the heart-sounds are still very faint, and the præcordial dulness now extends to 2 inches to the left of the right sternal margin.

31st March.—The lungs are now almost clear, except for a patch of tubular breathing at the level of the left scapula. A radiograph taken on 30th shows a very greatly enlarged heart shadow (Fig. 3). The right leg has become very œdematous. The temperature, pulse, and respirations have risen.

1st April.—Transferred to surgical ward. The pericardium was drained by Mr. Fraser, and between 4 and 5 ozs. of pus removed; a tube was inserted.

2nd April.—The child has stood the operation well; his pulse is slower, and he is a better colour.

4th April.—Signs of fluid developed at the left base, and a rib was resected and a tube inserted. The child stood this second operation remarkably well, and for a time seemed as though he would recover. About the 20th April, however, he became very weak, and although both his wounds were healing and the discharge subsiding, he died on the 24th April.

Although this patient died, the great improvement in his symptoms which followed drainage of the pericardium fully justified the operation, and had it not been for the unfortunate complication of empyema of the left pleura necessitating resection of a rib four days after the first operation he might have pulled through. As it was, he lived for 24 days after the pericardium was opened.

The next case is quoted as one on which the radiographs failed to show pericarditis, although it was present.

CASE III.—*Pneumonia; Serous Pleurisy going on to Empyema; Operation with Good Result* quâ *Empyema; Lung Expanded and Discharge almost Ceased; but General Condition and State of Pulse Suggested Involvement of Pericardium. Radiograph Negative. Post mortem a Week later showed Pericarditis.*

Duncan T., aged 4, admitted 15th January 1916, complaining of cough, fever, and breathlessness, of a week's duration.

Family History.—Satisfactory; six children alive; one still-birth; and one died of pneumonia.

Previous Health.—Breast-fed till 9th month; teeth at 9 months; walked at 15 months. Measles at 2 years. Otherwise healthy until 7 days ago, when *present illness* began with pain in the side and abdomen, feverishness, rapid breathing, and slight cough.

Condition on Examination.—Well-developed, well-nourished child; acutely ill. Temperature, 104·4°; pulse, 172; respirations, 64.

Respiratory System.—Over left base numerous fine crepitations, with tubular breathing at upper part of lower lobe. Impairment of note and increased vocal resonance over this area. Apex beat in 4th space, just inside nipple line.

Abdomen soft; liver slightly enlarged; spleen palpable. Heart sounds good; no enlargement or displacement of cardiac dulness. Examination otherwise negative; von Pirquet negative.

Progress.—Crisis on 19*th January.*

23rd January.—Temperature has gradually risen since crisis, and is now swinging and physical signs persist. Leucocytes, 29,800, with 95 per cent. of polynuclears. Exploration yielded no pus.

27th January.—Temperature normal; physical signs less.

1st February.—Temperature rose to 101°; a syringeful of turbid fluid withdrawn from left base.

2nd February.—Five ounces of turbid serum aspirated. It contained few pus cells, and gave a pure culture of pneumococci.

5th February.—Temperature from 99° to 100° since last note. Dulness at base and in axilla. Leucocytes, 33,600, with 90 per cent. polynuclears; 2½ ozs. turbid serum aspirated.

8th February. — Temperature normal. Dulness less. Leucocytes 23,000, with 75 per cent. polynuclears.

13th February.—Temperature, which has been from 99° to 100° since last note, has again fallen. A few drops of pus removed on exploring at angle of scapula. Radiograph (Fig. 4) shows well-marked uniform shadow, with well-defined border, all over left lung. Heart slightly displaced to right.

18th February.—Temperature has remained down for past six days. The dulness posteriorly is somewhat less, while in axilla it is greater and the apex beat is displaced a little more to right. A syringeful of pus was withdrawn from the left axillary region, and on the 19th February the seventh rib was resected in the mid-axillary line.

5th March.—Patient has been doing fairly well, though for the past few days his temperature has tended to rise above normal, and last night was 102°. His pulse is more rapid (130-156). Leucocytes, 24,600 with 80 per cent. polynuclears. There is now very little discharge from the empyema wound, and the lung is expanding well. Careful examination of his chest showed no physical signs of further lung infection or of pericarditis, though general condition strongly suggests latter.

6th March.—Radiograph to-day shows (Fig. 5):—(1) No enlargement of the heart shadow, the contour of which is singularly ill-defined; (2) great diminution of the shadow over the left lung seen in last radiograph; and (3) shadows suggestive of bronchitis radiating out from root of right lung.

9th March.—Patient is decidedly worse. Pulse is more rapid (170-180), heart sounds not muffled or distant. Right border of cardiac dulness outside sternum; left border ½ in. outside nipple line. No friction or bruit.

12th March.—Cardiac dulness somewhat increased; heart sounds muffled; pleuritis, but no pericardiac friction in left nipple line. The child died on 13th March.

Post mortem.—Pericardium distended with pus. Left lung compressed and firmly adherent to the pericardium along the whole of its

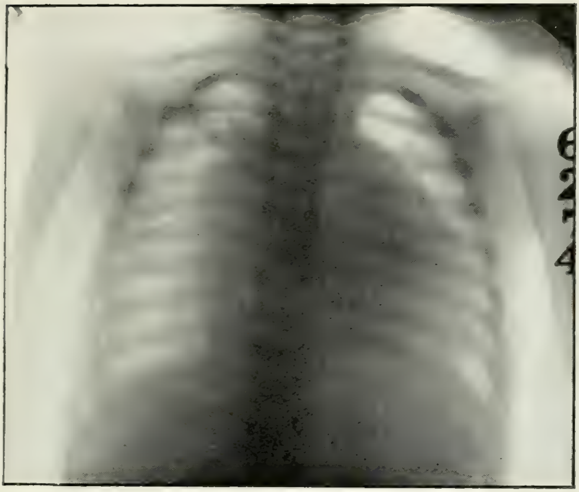

Fig. 3 (Case II.).

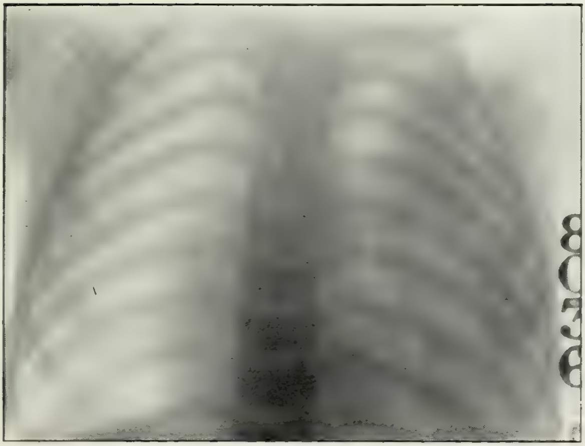

Fig. 4 (Case III.).—Shadow caused by Empyema: displacement of cardiac shadow to right.

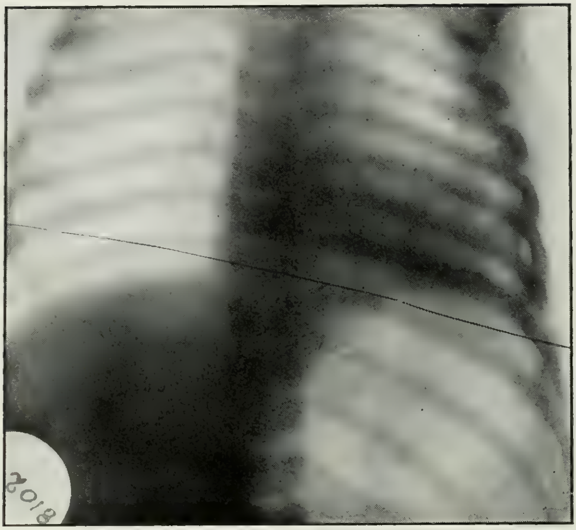

Fig. 5 (Case III.).—No Evidence of Pericardial Effusion ; little or no shadow over base of left lung.

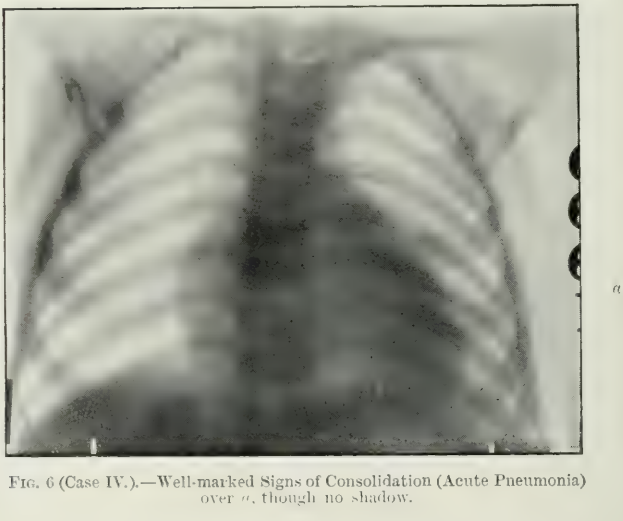

Fig. 6 (Case IV.).—Well-marked Signs of Consolidation (Acute Pneumonia) over *a*, though no shadow.

inner border. On section, lower lobe solid, in a condition of grey hepatisation. Some comparatively recent peritonitis.

In this case we were reasonably certain that pericarditis existed when the radiograph was taken, yet the absence of the characteristic heart-shadow (Fig. 5) cast such doubt on the diagnosis that it would not have been justifiable to have had the pericardium drained. The most probable explanation of the appearance is that at this time there was not enough pus in the pericardium to give the shadow, although at the post mortem a week later, the pericardial sac was much distended. The explanation of the extremely ill-defined cardiac shadow, as compared with the normal, is not clear.

The earlier radiograph (Fig. 4) shows very well the appearance of a moderate-sized empyema. The shadow is uniformly dark and its margin is well defined. These appearances are more characteristic of pleural exudates than of acute pneumonia.

In the second radiograph made (Fig. 5) it will be noted that there is little or no opacity of the left lung. The empyema had practically healed, and the lung had expanded well. Yet on post-mortem examination the whole lower lobe of the left lung was solid, in a condition of grey hepatisation, and this must have been present when the radiograph was taken, without producing a shadow. This confirms an observation we have made in other cases, viz., that in acute croupous pneumonia the shadows cast may be very slight. The following case is an example of this:—

CASE IV.—*Acute Pneumonia; Radiograph Negative on Eighth Day, Though Physical Signs Well-Marked; Crisis on Tenth Day.*

Catherine S., aged $6\frac{4}{12}$, admitted 12th July 1914, with complaint of feverishness and vomiting for two days.

Family and *Previous History.*—Has had chicken-pox and measles, and occasionally bronchitis, and has always been looked on as rather delicate.

The *present illness* began two days ago with feverishness, vomiting, and epigastric pain.

Condition on Examination.—Fairly nourished child. Temperature, 102°; pulse, 140; respirations, 32. Herpes on lip. Apex beat in normal position; harsh breathing all over left lower lobe, and higher resonant note over left upper lobe anteriorly. Otherwise nothing material.

Progress.—The pneumonia ran a normal course, with crisis on 10th day. An X-ray on the 17th February (8th day) showed very little opacity at the left base (Fig. 6). The note made as to physical signs on that day reads:—"Left lung posteriorly. Dulness and tubular breathing from the level of the spine of the scapula to the base of the lung, extending outwards to posterior border of the axilla. In the axilla, and anteriorly, the breathing is harsh, vesicular, with a few crepitations."

There is thus a very decided contrast between the physical signs and the radiographic appearances.

It is not suggested that in acute pneumonia opacity is usually absent; in many cases a well-marked shadow is found. But the two cases illustrate the fact that with well-marked signs of pneumonia the lung may remain transparent to the X-rays, whereas it is probable that pleural exudates, even if the clinical evidences show that they are small (cf. *Edin. Med. Journ.*, November 1915, p. 330), always give a definite shadow.

ENUCLEATION OF THE EYEBALL UNDER LOCAL ANÆSTHESIA.

By H. M. TRAQUAIR, M.D., F.R.C.S.E.,
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About a year ago a discussion took place in the *British Medical Journal* on the question of anæsthesia for eye operations. At that time I pointed out that local anæsthesia is gradually supplanting general anæsthesia in regard to certain ophthalmic operations which have hitherto been almost solely performed under a general anæsthetic.*

In certain cases cocaine drops, as ordinarily used, fail to produce adequate anæsthesia, which can, however, be obtained by means of injections, either subconjunctival, post-ocular, or subcutaneous, or, if necessary, by a combination of these methods. A very small residue remains, consisting of a few cases in which conditions such as intra-orbital tumour or cellulitis contra-indicate the passing of a needle to the back of the orbit, and those in which youth, old age, extreme nervousness, or insanity compel resource to a general anæsthetic. In the latter class of case it is not so much the patient's tissues as the patient himself who must be anæsthetised. Thus the true function of general anæsthesia in ophthalmic surgery is the production of a passive patient: if the subject can be trusted to exercise the necessary self-control, the actual anæsthesia is practically always more satisfactorily obtained by local measures.

It is not my purpose at the present time to enter into the general question of the use of local anæsthesia in all of the ophthalmic operations where anæsthesia cannot be obtained by drops, but merely to refer shortly to enucleation of the eyeball. On the Continent both enucleation and evisceration have been widely done in this way for some years, and more recently this method has found favour in America. In this country, however, nothing appears to have been published on the subject as yet, although the method has been successfully used by several operators.

In a series of twenty-seven enucleations under local anæsthesia I have obtained completely satisfactory results. The anæsthesia was perfect in 21 cases (78 per cent.); nearly perfect in 3 cases

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* *Brit. Med. Journ.*, 26th September 1914.

(11 per cent.); and unsatisfactory in 3. It was never necessary to resort to a general anæsthetic, the three unsatisfactory cases being so classed, not because the pain was unbearable by the patient, but because the result was definitely disappointing to myself.

Technique.—An ordinary hypodermic syringe with a fine and sharp needle is required, and also a larger syringe, holding about 5 c.c., with a fine needle about 4 cm. long. The needles should be very sharp and smooth so that they glide into the tissues with the least pressure. Two solutions were used:—

1.	Novocain . .	grs. viij.	2.	Novocain . .	grs. iv.
	Cocaine hydrochlor.	grs. ij.		Cocaine hydrochlor.	gr. ½.
	Sod. chlor. . .	grs. ij.		Sod. chlor . .	grs. ij.
	Pot. sulphate .	gr. iss.		Pot. sulphate .	gr. j.
	Adrenalin (1-1000)	♏ viij.		Adrenalin (1-1000)	♏ v.
	Aq. dist. ad. .	℥j.		Aq. dist. ad. .	℥j.

A few drops of a 4 or 5 per cent. solution of cocaine are instilled into the conjunctival sac at intervals of three or four minutes, or little pledgets of cotton-wool soaked in the solution may be placed beneath the lids. When the conjunctiva is anæsthetised four subconjunctival injections are made over the insertions of the recti muscles, using the small syringe and about 0·5 c.c. of the strong solution for each injection. Then, with the large syringe and long needle, deep injections are made at the outer and inner sides of the eyeball, using altogether from 3 to 5 c.c. of the weak solution. The injection is commenced as soon as the needle point is beneath the conjunctiva and is slowly continued as the needle is gradually pushed on until the periosteum near the apex of the orbit is touched. Here the needle is slightly withdrawn and a few more drops injected so as to make a little pool of solution in the back of the orbit. In about two minutes the operation may be commenced. This little interval is occupied by the final completion of the arrangements for the operation, so that no time is really lost in waiting.

In the six cases in which perfect anæsthesia was not obtained there were experimental variations or accidental omissions in the technique which I am confident were responsible for the unsatisfactory results. If the method is properly carried out there should never be a failure. Acute congestion or inflammation of the eyeball was not found to prevent the attainment of complete anæsthesia. This agrees with the observations of American and German writers.

The advantages of this method are obvious. The patient is spared the inconvenience and disagreeableness of the usual preparation for a general anaesthetic as well as the subsequent nausea and discomfort. No assistant is required at the operation, and all the worries which may occur, and which need not here be enumerated, when the course of general anaesthesia does not run smoothly, are escaped. The risk of damage to the patient's good eye either by accidental drops of anaesthetic or by the assaults of those who practise "testing the corneal reflex" is obviated, and the possibility, however remote, of such a calamity as its removal is totally avoided. Lastly, time is saved, and I have found that this method is much preferred by the nursing staff on account of its convenience. The patient may go home the same day if his domestic arrangements are suitable and medical attendance available if required.

There are few contra-indications. Patients who cannot control themselves on account of extreme youth (my youngest was a boy of nine who did not murmur), old age, nervousness, etc., have been already referred to. Cases of purulent conjunctivitis and perforated panophthalmitis are considered by some writers on theoretical grounds to contra-indicate the use of the long needle in view of the danger of infecting the deep orbital tissues. Severe mangling of the eyeball due to injury is also mentioned under this heading. As a post-operative complication slight vomiting has occasionally been noted, but did not occur in any of my cases. There remains the sentimental objection. It is supposed that a peculiar feeling of horror and repugnance attaches to the removal of an eye, and that patients who must suffer this mutilation would very much prefer to be quite unconscious during the operation. Some writers have expressed themselves strongly on this point, but it is a striking fact that such views appear to be held practically only by those who have not used this method themselves and are not found in the reports of surgeons who have tried it. In my cases no such shrinking or aversion appeared to be present either in men or women; in fact, most patients seem to be relieved when they know they will not require a general anaesthetic. That other surgeons who try this method continue to use it is the strongest evidence in its favour.

My best thanks are due to Dr. J. V. Paterson, who handed over to me a considerable number of the cases.

THE DOCTORS IN ZOLA'S HISTORY OF THE ROUGON-MACQUART FAMILY.

By J. BARFIELD ADAMS, L.R.C.P., L.R.C.S.,
Member of the Medico-Psychological Association.

In the middle of the latter half of the nineteenth century a man named Émile Zola, a Frenchman with Italian blood in his veins, conceived the idea of writing a human natural history. The plan was simple. It was to be a study of heredity, the social and mental history of a provincial family with its grafts and branches. But under the hand of the artist the work grew apace. Zola was endowed with something of the genius of Rabelais, something of that of Balzac, and when he came to paint his pictures he set his palette with all the colours of the gorgeous East.

The scenes that he displays before us in the series of stories which record the stages of the evolution of the Rougon-Macquart family are marvellous in number and variety. There are pastorals, where the landscapes are flooded with sunshine, and the air is laden with the scents of lavender and thyme; there are gardens, where the eye is ravished by the beauty of the flowers, and the sense of smell is intoxicated by the richness of the perfumes; there are palace halls, where all the luxury of an imperial court reveals itself; there are market-places, where such humble things as vegetables, fish, and butcher's meat, touched by the enchanter's wand, become things of surpassing beauty; there are scenes as weird and gruesome as a Dance of Death, and others so foul and revolting that one turns away from them with sickening disgust. As for the characters which crowd the stage—statesmen, capitalists, and men of pleasure, priests and peasants, shopkeepers and labourers, miners grimy with the dirt of the coal-pit, grand ladies, tradesmen's wives, charming girls, and even children, elbow each other in admired confusion; while the flotsam and jetsam of humanity—the fallen and the lepers without the camp—not only hide in the shadows of the side scenes, but flaunt their rags and plague spots in the full glare of the footlights. In such a motley crew we have not to search far before we find the doctor. The world professes to consider that we are indispensable, and we—dear innocents—believe it. So Zola finds a place for us in his human tragi-comedy.

On the whole, he has treated us with moderation. It is true that he does not place us among his nobler characters, but, on the other hand, he does not expose us in the pillory to the derision of the vulgar. In his moral dissection he reveals our failings, but he uses the scalpel with a gentle hand.

One of the first of the medical men to whom Zola introduces us is Dr. Porquier of Plassans, a little city of Provence, which is important as being the cradle of the Rougon-Macquart family. This gentleman has a right to priority, for he is a fashionable doctor, and fashionable doctors are universally acknowledged to be the cream of the profession. Always faultlessly dressed, *bien cravaté*—and a glance at the fashion-plates of the period will tell you what all that meant in the sixth decade of the nineteenth century—if you had met Dr. Porquier in the streets of Plassans, you would have known that he was the *doyen* of the faculty of the city.

He was essentially a ladies' man, for none knew better than himself that he owed his lucrative practice to the favour of the fair sex; his lips were always wreathed with an affable smile, and he treated his patients *en médecin de belle société*, for whom such a vulgar thing as disease did not exist. He expressed a professional opinion in honeyed phrases, and avoided everything savouring of the disagreeable. Even when he was attending an advanced case of phthisis, *la chère madame* had only a slight cough, with a little —hem—hem—sanguineous expectoration.

This worthy doctor was not above telling naughty little stories—naughty little stories with a semi-scientific colouring, you understand—to his patients, but he was careful to graduate the naughtiness of the anecdotes to the tenderness or the toughness of the conscience of the hearer.

It must be admitted, however, that the life of the amiable man was not all *couleur de rose*. He had his troubles. The one thing he lived for was his practice, and the faintest idea of anything that might lessen the number of his patients threw him into a cold perspiration. The Revolution of 1848, and especially the *coup d'état* of 1852, had rather upset social life in the provinces, and society found itself divided into Bonapartists, Republicans, Legitimists, and Orleanists. We know how carefully we have to walk among our patients in a country where there are only two political parties. But four! And what made matters still more difficult for a physician who included a large number of ladies in his *clientèle*, was that at that moment relations were very strained between the Church and the Government on the Italian question. Dr. Porquier was naturally a sympathetic man, and his situation required the exhibition of great tact.

But the great trouble of the doctor's life was his son, Guillaume. This dissipated young man was foolish enough to sow his wild oats in Plassans right under his father's nose. Naturally, in a little cathedral city, where everybody knew everybody, and where even the very walls had eyes and ears, each one of his escapades came to light, and when they did so, Dr. Porquier trembled for his own reputation—reputation, of course, being only fees writ large. However, the doctor was a discreet man, and he weathered every storm.

Perhaps the real secret of his successful practice was the fact that he never committed himself to a positive prognosis. He knew how to hedge, and consequently, whatever was the termination of a case, he was never in the wrong. Once he was consulted about a case of suspected insanity, and the friends pressed for an opinion. "I have not said that he is mad, as it is commonly understood," replied the doctor, who believed his professional reputation to be at stake, "but I do not say either that it is prudent that he should be left at liberty."

We leave the Valley of the Rhône, the land of sunshine, of flowers, and of olives, to go to the North of France, to a little village on the coast of Calvados. It is a desolate region, where for whole weeks together the landscape is blotted out with driving rain, and from the shore one hears all day the roar of the sea, and the shrill rattle of the wave-tormented shingle. And Dr. Cazenove, too, is as different from the courtly Dr. Porquier as Provence is from Normandy.

Cazenove was a man of four-and-fifty years of age, weather-beaten and vigorous. He had served as surgeon in the Navy for thirty years, and when he left the service he retired to Arromanches, the village referred to above, where his uncle had bequeathed him a small property. In time he became the friend as well as the doctor of all the fishermen and peasants, and also of the few well-to-do families living in the neighbourhood. In all sorts of weather he might have been seen driving about the country in a little hooded gig, sitting beside his coachman, Martin, an old man with a wooden leg. Martin was a bit of a character in his way. He had been a sailor on the same ship as Dr. Cazenove, and when he met with the accident which cost him his leg, it was the latter who had amputated the limb. Martin became attached to the surgeon—the sources of affection are very various and sometimes incomprehensible—and was as ready to serve him on shore as on sea.

Dr. Cazenove was a sceptic in medicine. Thirty years of practice in all climates and among all sorts of patients had rendered him exceedingly modest as to his own skill, and very doubtful concerning the benefits of science. Putting the failures and mistakes on one side of the account, and the cures on the other, he had come to the conclusion that it was just as well, very often, to leave the case to Nature. Some of us arrive at that mental condition long before we have been thirty years in practice. However, there is a good deal of vacillation in our scientific scepticism. A success, and we become enthusiastic for the healing art; a failure, and we fall back into pessimism. It was very much the same with Dr. Cazenove.

But one cannot help thinking that sometimes he carried the doctrine of *laissez faire* too far. Certainly, in a case of post-pharyngeal abscess which he attended he would have lessened the risk to life and greatly relieved pain if there had been more heroism in his treatment. A difficult midwifery case, which occurred in the practice of Dr. Cazenove, is related by Zola with details which seem out of place in a work of fiction, but withal in such a masterly manner that it is a veritable lesson in the accoucheur's art, and, realising all the difficulties and dangers, a medical man follows the progress of the case with the acute tension of plot-interest.

The patient was a young woman who had arrived at the commencement of the ninth month of her second pregnancy. Premature labour set in. The midwife was the first to appear on the scene. This *sage-femme* was a certain Madame Bouland, who had an extraordinary reputation for energy and cleverness in her art. Everybody swore that she had no equal in Bayeux or even in Caen. She was a little, thin, dark-complexioned woman, yellow as a lemon, with a great hooked nose. She spoke in a loud voice, and had despotic manners which caused her to be venerated by the peasants' wives.

Madame Bouland was not long in the lying-in chamber before she found out that something had gone wrong. She called the patient's friends aside, and told them that she believed it was a shoulder presentation.

"In such a case the presence of a doctor is absolutely necessary," she said. "I cannot undertake the responsibility of the accouchement, especially at eight months."

The patient had previously protested against the idea of being attended by a man-midwife, but now her sufferings were so great that she offered no opposition, and Dr. Cazenove was sent for.

It was a long way to Arromanches, and valuable time was lost. The membranes ruptured, the arm and hand prolapsed, and things were going from bad to worse when the doctor arrived.

It was in the early days of chloroform, and in country districts there was still much prejudice against its employment in cases of labour. Madame Bouland, the *sage-femme*, protested warmly against the use of the anæsthetic, and finally, being apprehensive of hæmorrhage, the doctor, in spite of the wishes of the friends who desired to spare the patient all unnecessary pain, decided to do without it.

Dr. Cazenove set to work.

Zola paints the scene with the homely feeling of a Dutch artist. Imagine an upper chamber in a two-storied Norman house, with its sloping roof and dormer window. In the grate burns an enormous fire, the ruddy flames of which, conquering the feeble light of two tallow candles and an oil lamp, gleam on the polished panels of the old-fashioned but substantial furniture, and fill the corners of the room with dancing shadows. Thrown over the backs of a couple of chairs are sheets and other articles of linen airing before the fire. On a table stand a bowl of water, a plate of lard, a bottle of brandy, and a kettle, from the spout of which rises a faint cloud of steam. The patient, half unconscious with fear and suffering, lies on a bed, on one side of which stands the midwife, ready to control the struggling limbs, and on the other kneels the doctor, while behind the latter, a female friend has placed herself, anxious to render what aid she can.

The faces of the actors in this domestic drama are a study in themselves. The doctor's is set like a mask; only the occasional quivering of the eyelids give a sign of human feeling. The midwife, who feels herself freed from responsibility, regards the patient with professional interest, not unmixed with sympathy. As for the young friend, the expression of her face is partly one of distress at suffering, of the possibility of which she had never even dreamed, and partly of horror at the seeming butchery which is taking place before her.

The doctor does his work almost in silence. Occasionally he gives an order, and the midwife moves to obey him. For the rest, all that one hears is the low moaning of the patient in her agony, and the crackling of the wood on the fire, while from without come the noise of the waves breaking on the shore, and the patter of the rain on the window.

If the novelist has painted the concrete details of the scene with great skill, it is with greater that he reveals the workings of the doctor's mind. It is impossible to do more than feebly indicate the chief points of this clever bit of mental analysis.

Like other naval surgeons, Cazenove had had but little experience in midwifery. Occasionally, when temporarily attached to a colonial hospital, he had attended negresses in the rare cases when some complication had occurred in their parturition. Since he had set up in practice in Arromanches he had been called in to a good many confinements, but they had not been numerous enough to give that second nature, that instinct, to his hands that those of a good accoucheur possess—that makes the fingers move with certainty, guided by the sense of touch as much as by the brain. This instinct is the offspring of constant practice. It is easily acquired in youth, but with difficulty, if at all, in later life. Further, as Cazenove commenced the operation, he realised that his hand and arm were not as supple, nor perhaps as strong, as they once had been. And what was worse, he distrusted himself. Even his knowledge disheartened him, for he knew the dangers of the case, and he feared every moment that he might injure the mother or the child.

But there was no help for it. In that lonely house he, and he only, could save the two lives entrusted to him. Cazenove was not the man to shrink from his responsibilities. He bent every power of his being to his task. He was always haunted by the dread of possible failure. But he persevered, and at last he was rewarded by delivering a living child, and saving the mother's life.

Zola seems to have had a kindly feeling for this rough but tender-hearted country practitioner, but never does he show him in a nobler light than when he represents him kneeling beside this bed of suffering, oppressed by the sense of his own want of skill, and yet doing his work with gentleness and patience.

In Dr. Finet the novelist has drawn the portrait of another country surgeon. This gentleman's practice lay in an agricultural district.

Soon after leaving Étampes, the tourist in the Bordeaux express, on his way to the wonderland of Touraine, to Biarritz, or the watering-places of the Western Pyrenees, finds himself travelling across a wide flat country clothed with vast fields of wheat. On either hand the fields stretch away towards the horizon, the corn rippling like waves of the sea, and changing colour every now and then beneath the shadow of a passing cloud. The eye wearies of the monotony. Scarcely a tree is to be seen, and the rare farmhouses, with their clustering barns, and the rarer hamlets and church towers, stand like islands in this ocean of greenery or of golden yellow as the summer's sun ripens the corn. This is the Beauce, the granary of Paris, and it extends across the greater part of two *départments*, from Chartres in Eure-et-Loir to Orléans in Loiret.

One can easily imagine what medical practice would be like in such a district—hard work, bad pay, and terribly long journeys.

Dr. Finet lived at Cloyes, a little town, or rather village, of about 2000 inhabitants, not far from Châteaudun, and almost in the centre of the Beauce. He was a tall, spare man, rough in manner and in speech; his face "was yellowed by dead ambitions. In the bottom of his heart he cursed his peasant *clientèle*, which he accused as the cause of his mediocrity." We all begin life with lofty aims, and when we fail to attain them, some of us put our failure down to our surroundings. Perhaps, however, Dr. Finet had some ground for his discontent, for Zola describes the Beaucerons, among whom the doctor practised, as a most backward race. They seemed to be animated with but one passion—the love for the land on which they laboured. To own a portion, however small, of this land was the peasant's sole ambition. He starved, and toiled from dawn to sunset to add a furlong to the plot his father had left him.

The Beaucerons are the direct, and probably very pure, descendants of the Carnutes, the Gaulish tribe which inhabited the then forest-covered country watered by the Loir and Eure, and where the religion of the Druids had its stronghold. Legend tells us that beneath the spot on which now stands the beautiful cathedral of Chartres there was in Celtic times a cave-temple, in which was worshipped the statue of a virgin, a deity who, like the Greek Demeter, endowed the earth with fruitfulness. Possibly, in spite of centuries of Christianity, this ancient cult still finds expression in the passionate love of the peasants of the Beauce for the land which feeds them.

When we first meet Dr. Finet, he has been brought from Cloyes to see an old labourer who has just died of apoplexy.

"I told you how it would be," he exclaimed angrily, turning to the man who had fetched him. "I did not want to come. It is always the same story. They send for me when they are dead."

Then he forgets his anger in listening to an account of a terrible storm of hail which has just swept across the country, destroying the crops and ruining the little gardens of the country people; for on account of always living among the peasants, he had, as Zola says, finished by having their passions.

From the scattered nature of his practice Dr. Finet was driven to all sorts of expedients to economise his time. With that object, when he found a patient *in extremis*, he was accustomed to write out the death certificate (*permis d'inhumer*), in order to save himself an unnecessary journey on the morrow. Sometimes it happened that he was rather premature in his arrangements. On one occasion he was attending an old woman, whom he did not expect to live through the night. He wrote out the certificate at once, and the next day, hearing that she was still alive, he was rather annoyed, not so much that his prognosis was incorrect, though, of course, that was unpleasant, as to find that he was compelled to drive some miles out of his way to pay another visit.

In Dr. Juillerat we are introduced to a man of a different stamp. He had an excellent middle-class practice in Paris. A man of medium ability, but of sound common sense and much kindliness of heart, time and experience had made him a good general practitioner. Like most men of his rank in the profession, if he had a speciality, it was that of midwifery and diseases of women, and he boasted that for thirty years he had attended all the confinements in the neighbourhood and treated all the young ladies for the minor and major ailments of their sex. But he was quite up to his work in the other branches of the art of healing, and we see him attending all sorts of cases from apoplexies to gunshot wounds resulting from an attempted suicide.

Dr. Juillerat was a man who was always welcomed in society. In the evenings he frequented assiduously the drawing-rooms of his fair patients. When he found himself in these gay reunions, it was not uncommon for the male relations of the hostess or of the guests to draw him aside into the corner of the room or the embrasure of a window, and to take the opportunity of obtaining a gratuitous consultation for themselves—consultations which in the end were probably quite as remunerative for the doctor as those which were held in his study.

The most convincing proof of the stability of Dr. Juillerat's professional position was the openness with which he expressed his political and religious opinions. He was a republican, and he did not care who knew it. Even at a moment when imperialism was fashionable, and particularly among certain of his wealthy patients, he aired his democratic views with a freedom which commands our respect. He was a freethinker also, and he acted up to his principles. When he paid the last homage to an old friend, he was accustomed to wait outside the church while the religious part of the funeral function was being performed.

Many were the discussions between the doctor and Abbé Mauduit, a priest attached to the principal church of the neighbourhood, and who was as popular in his way as the physician was in his. In spite of the difference of their creeds, the two men were friends. They often met at the bedside of the sick and dying, and they both had tender hearts for the sufferings of humanity. It was not only physical suffering that they were called upon to face. The social cancer, which was eating the heart out of the tawdry court of Napoleon III., had infiltrated all ranks of Parisian society. The priest received the confessions of his penitents, and the doctor—well, we know that doctors receive confessions also.

"What misery!" murmured Abbé Mauduit, as the two men left a house where the moral disease was as great as the physical, and where, perhaps, the work of the priest was more difficult than that of the physician.

Dr. Juillerat shook his head. "Such is life," he remarked.

Then for a few minutes he spoke of the social evil with a good sense that was better than all philosophy. But a little later he spoiled his case, as Zola says, by the violence with which he advocated his political views as a universal panacea.

The priest listened in silence with a far-away look in his eyes and a sad smile on his lips. "May Heaven have pity upon them!" he murmured when at last the doctor paused in his tirade.

Just at that moment they saw the wife of a tradesman standing at her shop door. She was the picture of health and respectability.

"*Bonjour, monsieur l'Abbé,*" she cried gaily—she was an old acquaintance of both the gentlemen. "*Bonjour, monsieur le docteur.* You are always busy."

The priest and the physician congratulated the smiling woman on her radiant and happy appearance.

"Oh! if all the world were like me," she replied laughingly, "you gentlemen would have little to do."

The two friends looked at each other and smiled. The good woman's words were a commentary on their discussion.

Let us follow Abbé Mauduit's example, and leave Dr. Juillerat to continue his round of visits alone.

The next scene is the padded room of a great Parisian asylum. A miserable man, reeking with sweat, and with bloodshot eyes, is marching eternally between a mattress lying on the floor and the guarded window. He is talking always, and every now and then he pauses to menace some horror that his mind conjures up before him. A woman, who seems in the last stage of destitution, is crouching near the door. A physician is standing listening to the details which a senior student is giving of the case before them.

The doctor is an elderly man with a bald head. He listens politely to the history of the night, while he watches the patient with the keen glance of an old practitioner. Suddenly he turns to the woman, whose presence until now he appears to have ignored. "Did the father of this man drink?" he asks abruptly.

"Yes, *monsieur*," replies the wretched woman, rising to her feet and trembling as though she were under the eye of a *commissaire de police*. "Only a very little. Like everybody else. He was killed one day falling from a roof when he was drunk."

"Did his mother drink?" asks the doctor.

"*Monsieur*," replies the woman, growing communicative, "like all the world. A drop now and a drop again. You know. Oh! the family was very respectable. He had a brother who died very young of convulsions."

For a moment or two the doctor regarded her with his piercing eyes. Then he said roughly: "You drink also—you."

The woman stammered, defended herself, and placed her hand on her heart to give the solemnity of an oath to her words.

"You drink," continued the doctor severely. "Take care. You see where drink leads to. One day or another you will die in the same way."

Cowed and trembling, the woman shrank back against the wall, and the old doctor turned once more to observe the patient, watching him as he hurried back and fore like a caged beast between the mattress and the window. Little tremblings passed down the poor wretch's body and descended to the hands and feet. The limbs jerked as though they were pulled by wires, while the trunk was as stiff as though it were made of wood.

The physician gave some directions to the student and then turned away and left the room.

Many years ago, when I first read *La Débâcle*, I thought that it would have been impossible to paint the horrors of war more vividly than Émile Zola had done in that book. But in the autumn of 1914 every journal gave news of the Prussian invasion of Belgium and Northern France, and teemed with paragraphs which were filled with details of more ghastly atrocities and even more wanton destruction than can be found in the work of the French writer. It was not that the descriptions in the newspapers were more dramatic. Indeed, they were not dramatic at all. They were simple records of facts. But they were drawn from more abundant material, and they overwhelmed us with the massiveness of the horrible. It was the same barbarian race, uncivilised after centuries of civilisation, which had inflicted the cruelties of 1870 on the French people, which murdered, ravished, and destroyed in Belgium and Flanders in 1914. In 1870 Russia and the British Empire—the latter being at that hour, as she too often has been, more parochial than imperial—were wrapped in the selfishness of petty interests, and looked on unmoved. The movement of an army corps, the sailing of a squadron, would have stopped the carnage and bridled the greed of the Prussian. History is one long record of the work of Nemesis. In 1914 Russia and Britain had their reward. The *Lusitania* went down, and the bodies of English women were cast up on the shores of Ireland. English babies were murdered even in our sea-girt isle. Russian Poland was black with the smoking ruins of cottage and castle.

The scene of Zola's great novel is laid in Sedan, and the time extends from the night when the ring of German iron and steel crept round the doomed city to the days which followed the tragedy of the capitulation. Everything lacked in the French army but bravery. The commissariat was in a state of absolute confusion; there were no stores; there was no food. In such a state of things it was to be expected that the medical service, always the Cinderella of an army, would be disorganised. But the doctors did their best. If the generals, mad with jealousy and incompetence, failed in their duty, the surgeons did theirs.

It was the first day of the battle. The thunder of the guns was distant yet, and in the village of Bazeilles a handful of marines held the whole power of the Bavarians in check. In Sedan, one doctor at least, Surgeon-Major Bouroche, was preparing for eventualities. Early in the morning he had turned the premises of a dyer into a hospital.

He was a middle-aged man, with a big head covered with thickly growing hair, cut *en brosse*. Every feature of his face bespoke determination and energy.

The dyer's establishment, which was one of the largest in the city, lent itself fairly well to the needs of a temporary hospital. In the drying-room, an immense hall with lofty windows, a hundred beds were easily installed, while a large shed, just outside, was converted into an operating theatre. Here, under the doctor's directions, was brought a long table, upon which was placed a mattress covered with a sheet of oil-cloth. A pump in the adjoining yard provided an abundant supply of water. A lawn, shaded by some ancient elms, was set apart for the less seriously wounded to wait while the surgeon attended to the more grievously injured.

Bouroche, foreseeing the massacre which was going to take place on the battlefield, had preferred to establish himself in Sedan. He had contented himself with leaving in the rear of the 7th corps to which he was attached, two flying ambulances and a first-aid station, whence they could send him the wounded after having made the preliminary dressing. All the stretcher-bearers were there also. Beside Bouroche, the surgeon-in-chief, the staff of the temporary hospital in the dyer's establishment consisted of two assistant surgeons, three trained ambulance men, and about a dozen male nurses.

Bouroche saw to everything himself. His energy was enormous, but he was a man who could do nothing without getting into a passion.

"Bestir yourselves!" he cried, as he hurried from the operating shed into the drying-room. "Put those mattresses closer together. If there are not enough, spread some straw in that corner."

The thunder of the distant cannon grew more violent. The surgeon knew well that at any moment the ambulances might arrive with their load of bleeding flesh. He returned to the operating shed to see that all was ready. The boxes of medicines and dressings were arranged open on one plank. There were packets of lint, rolls of bandages, and bundles of splints. On another plank, beside a bottle of chloroform and a huge pot of ointment—remember it was forty-six years ago—were the cases of instruments. The bright steel gleamed in the morning sun. Sounds, forceps, scalpels and bistouries, scissors and saws were arranged ready to hand. It was a veritable arsenal in which was found every surgeon's tool, sharp or blunt, for sounding, twisting, and cutting. But basins were wanting.

Bouroche was furious.

"I want all your dishes, buckets, saucepans," he cried to the dyer's wife and her servants, who stood around him pale as death. "Bring everything of the sort that you have. Do you think we are going to splash ourselves up to our noses with blood? And sponges! Try and find me some sponges."

The women hurried away, and presently returned laden with all the crockery of the house.

There was the sound of horses' hoofs and the rumble of wheels in the street outside. The first ambulance had arrived. The wounded were not very serious cases — comparatively slight wounds of arm or head.

The thunder of the guns drew nearer. A shell whistled over the town.

The ambulances began to arrive in quick succession. Soon the regimental vehicles were not enough. Everything on wheels appeared to be pressed into the service—fourgeons, ammunition waggons, country carts, and even wheelbarrows. It was terrible work unloading these cargoes of suffering humanity. The faces of some of the wounded were of a greenish pallor; others were purple with congestion. Some of the men had fainted; others moaned in agony. The invasion was such that all the mattresses prepared in the vast drying-room were occupied, and Dr. Bouroche gave orders to lay the patients on the straw made ready in the corner. Soon that was not enough, and the ambulance men had to spread fresh straw between the beds.

The surgeon and his assistants were hard at work in the operating shed. The one table was not sufficient. Another was prepared for the first assistant. A sheet was rigged up between the two tables, so that the patients should not see each other. Outside, at the further end of the lawn, behind a mass of shrubs, the ambulance men placed the dead bodies, for many of the wounded expired as they were lifted from the vehicles which brought them from the battlefield. In this corner, too, they threw the amputated limbs and all the *débris* of flesh and bone which they cleared from the operating tables. That corner of the dyer's lawn became a veritable charnel-house.

The sound of the guns, which never ceased, grew nearer and nearer. The shells began to rain over the city of Sedan. One burst with a frightful explosion in the dyer's garden, shattering every pane of glass in the surrounding buildings. The women screamed, and those of the wounded lying in the great drying-room who could move, dragged themselves to their feet and endeavoured to make their escape.

Undisturbed by the noise and confusion, the surgeons worked on. They were busy enough, although they did not attempt any but urgent operations. Projectiles lodged in dangerous zones, such as the base of the neck, the axilla, or the groin, were left alone for the present. Already Bouroche had performed four amputations. He was a clever surgeon. He performed a disarticulation at the shoulder joint by Lisfranc's method, and a grim smile of satisfaction flitted across his face when he found that he had done it in 35 seconds.

Hour after hour the wounded continued to arrive in an endless stream. The heaps of dead bodies and of mutilated limbs grew higher and higher in the charnel-house, and even overflowed upon the lawn. The assistants emptied the buckets from the operating shed over a flower-bed filled with white marguerites, and the snowy blossoms were all splashed with blood.

The noise of the battle drew nearer every moment. The enemy's artillery had found the range to a nicety, and shells fell everywhere in the doomed city. Here, a private house came crashing down; there, a shop was wrecked; while at a corner of yonder street half a dozen women were killed instantly. For the Germans paid little attention to the Château, an antiquated fortification, dating back, perhaps, to the days of Vauban, and, as they do in the present war, devoted themselves to the destruction of private property and the murder of civilians.

A second shell burst in the dyer's garden, cutting down one of the ancient elm-trees. A minute later, another fell on an ambulance which had just arrived at the gate, killing men and horses.

The horror of the situation and the strain of work was telling even on the iron nerve of Bouroche.

"*A quoi bon!*" he muttered to himself as the ambulance men carried away a patient from the operating table, and having cooled his arms in a bucket of water, he pulled himself together and stretched his tired back.

The men brought another of the wounded to the operating table. The new patient was a young captain of infantry—a handsome youth, born to find favour in the eyes of women. The wound was above the ankle, and amidst the torn muscles, which looked like shreds of sodden meat, a splinter of a shell had forced a rag of red cloth. The limb was blanched and pulseless.

"Here is a bad foot," said Bouroche grimly, as he examined the injury.

It was a part of his tactics never to demand directly permission to amputate. He preferred that the wounded man resigned himself to the mutilation.

"You find it bad, Major?" said the young captain.

"It is a bad foot," said Bouroche, as though he were thinking aloud: "we cannot save it."

"It is necessary to finish, Major. What do you think of it?" asked the young officer.

"I think that you are a brave soldier," replied the surgeon, "and that you are going to let me do what is necessary."

The eyelids of the hero quivered.

"Do it, Major," he replied simply and bravely.

The battle is over and the French army has surrendered. The conquering hordes have left the valley of the Meuse and have swept on over the fair land of France, followed by the back-wash of German lust and cruelty.

To the country surgeons was left the task of tending the wounded and the sick who fell by the way. It was a sorry business. The work of a field hospital, while actual fighting is going on, is bad enough, but at least there is excitement. There is the chance, if nothing else, of victory in the air. But it was otherwise in these hospitals hastily improvised in farmhouses and village schools. Here everything was lacking but patients, and they were as miserable as numerous, and seemed to have lost hope and courage and everything that was worth living for.

In Remilly, a village near Sedan, Dr. Dalichamp, a country practitioner, had established a hospital partly in the schoolhouse and partly in the remains of a convent, the main buildings of which had been wantonly destroyed by the invaders' guns. There the peasants brought the wounded who had been left to die on the battlefield, and the sick whom they found in the roadside ditches. Some of the poor wretches were dying of starvation, others of blood-poisoning from neglected wounds, and others again were ill with fever.

It was thankless work. The doctor had to beg mattresses and even food for his patients from the country people around, who were themselves ruined by the pitiless exactions of the enemy. Although there were as many sick and wounded German soldiers in this village hospital as there were French, the Prussian authorities at Sedan would not supply the doctor with medical necessities—not even chloroform. Everything had to be brought from Belgium, the border of which hospitable country was fortunately at no great distance from Remilly.

Soon things became worse. Dysentery, typhus, and smallpox in its most virulent form, made their appearance. Dalichamp and his noble band of assistants—peasants, farmers' wives and daughters, and the few ladies who remained in the neighbourhood—worked wonders, but the death-roll was terrible.

There were hundreds of country practitioners like Dalichamp in stricken France during that terrible winter, who worked night and day to heal the sick and assuage the sufferings of the dying, who worked as hard for friend as they worked for foe. All honour to them! They were not the least among the heroes of 1870.

These are some of the doctors met with in Zola's novels. It would require many pages more to describe even briefly all the members of the profession to whom the writer introduces us. But space forbids. Dr. Pascal Rougon, one of the novelist's principal characters, has not been mentioned. His case demands a paper to itself, and if the editors permit, it shall appear in a future number of the *Journal*.

CLINICAL RECORDS.

A CASE OF CONGENITAL CUTANEOUS OUTGROWTH.

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THE subject of this unusual tumour was an unmarried female, aged 25, who was referred to me by Dr. Rogers. The condition was noticed at birth and apparently had increased *pari passu* with the general growth of the body. As shown in the photograph (Fig. 1) there depended from the lower half of the right posterior triangle of the neck a flaccid cutaneous outgrowth. It measured three inches across at its base and four inches from its base to the apex which hung well over the clavicle. It was dusky red in colour with a rugous surface. The patient complained of some irritation which had developed recently, and on raising the growth some erythema intertrigo was found, which explained her discomfort. The base of the tumour, though elongated, was quite narrow, and there was apparently no connection with structures deeper than subcutaneous tissue. There was no difficulty in removal. An elliptical incision close to its base allowed its ablation with practically one sweep of the knife, and the cut edges of the skin were quite easily drawn together. The tumour was examined in the pathological department of the Dundee University College and I am indebted to Dr. J. H. Hunter for the following description:—

"Two separate portions were examined, one at the base of the flap and the other at the apex. There was no difference in the structure of the deeper portions, but marked difference in the structure of the skin surface.

"In the section taken from the apex of the flap, the surface lining had the usual appearance of stratified epithelium, containing hair follicles and sebaceous glands, but entirely devoid of the papillary arrangement of normal skin. No sweat glands were seen. The cells forming the deepest layer of this stratified epithelium were filled with brown pigment.

"In the section taken from the base of the flap the surface epithelium had the appearance of normal skin, containing hair follicles, sebaceous and sweat glands, but no pigment.

"The basis was made up of a very cellular fibrous tissue of

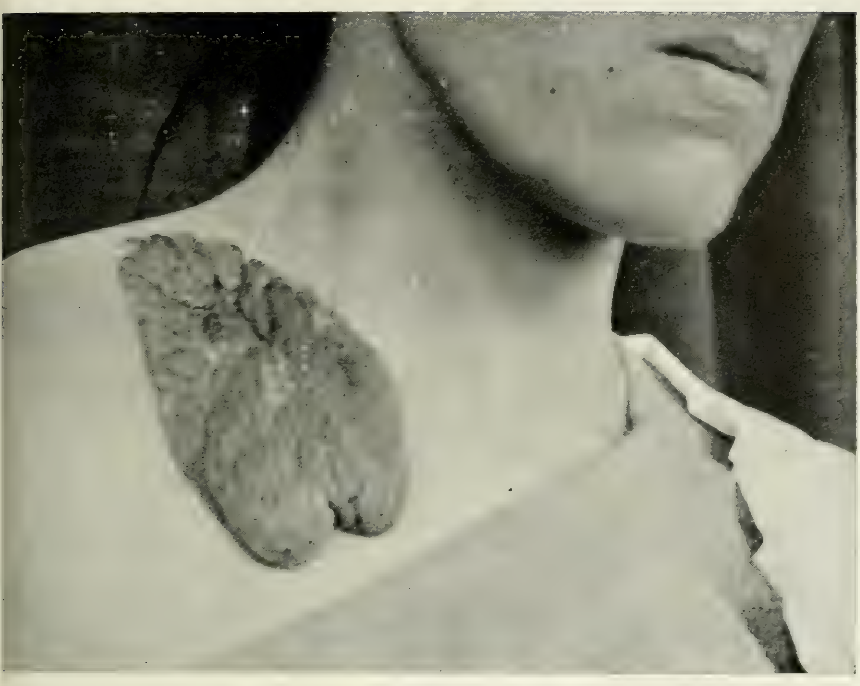


Fig. 1. Congenital Cutaneous Outgrowth on Neck.

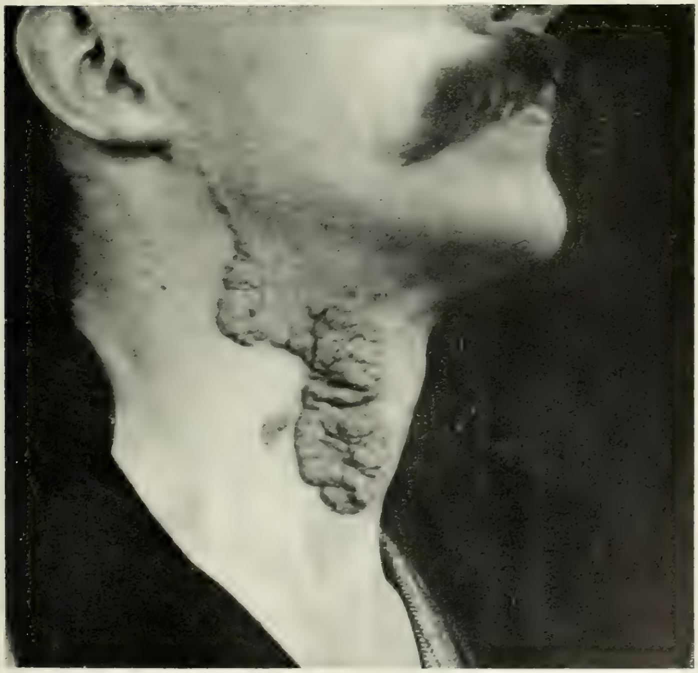


Fig. 2.—Congenital Papillomata on Neck.

varying densities, in some parts consisting of fibres closely packed together, in other parts, and mainly, very loosely packed. Here and there were areas in which the fibrous tissues gave place to a round or spindle-celled tissue. Throughout the whole structure a very large number of vascular spaces, blood and lymphatics, were present, narrow, elongated, or round, each lined by a single layer of endothelium and having no special supporting structure. The majority of these spaces were filled with blood."

The condition is not a common enough one apparently to merit a distinctive name, but the term I have chosen is less ambiguous than some which seem to have been applied to somewhat similar conditions. "Dermatolysis" is obviously a condition of loose skin and should be retained to describe such, and "elephantoid hypertrophy" or "pachydermatocele" indicates overgrowth of the skin but scarcely conveys the idea of a congenital origin. Pachydermatocele is a tumour growing out of all proportion to the general somatic growth, and indeed demands operation ultimately on account of its size and weight, or of some complication due to its site.

Though its surface was rugous it conveyed no suggestion of angeiokerotoma. The growth was pliable and soft to the touch. Its brownish-red colour suggested rather that it had some relation to that curious form of congenital "warts" which appears in this region in a linear form, as if marking out the original line of certain of the branchial clefts.

A Case of Congenital Papillomata.

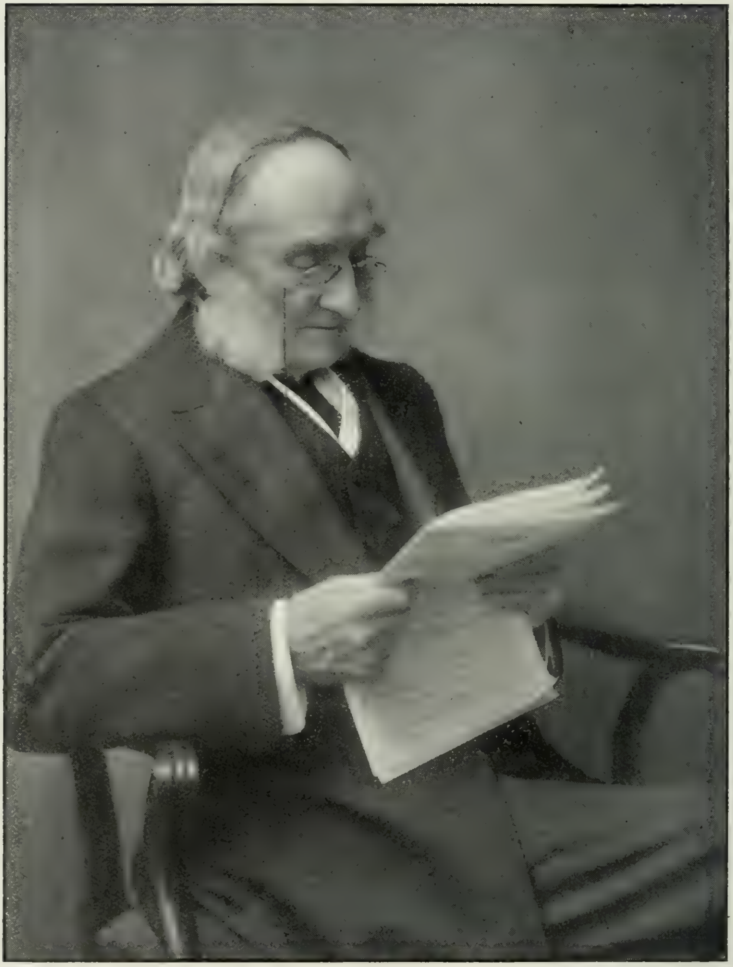
In close relation and with marked similarity to the above case is this one of congenital papillomata on the neck.

It existed in a man, aged 25 years, one of a family of seven, in which there was no history of congenital abnormality in any other member. The warty condition, so obvious on the right side of the neck, did not occur on any other part of the body. It had been noticed at birth, and had not enlarged out of proportion to the general growth of the body. The condition gave the patient no trouble, but he desired removal of the growth on account of its unsightliness. From just above the middle of the anterior border of the right sterno-mastoid muscle, extending forwards to the hyoid cornu and passing down the neck to below the level of the cricoid cartilage, was an irregular mass, about three inches long by an inch and a half broad, of soft flattened brownish warts raised a quarter of an inch above the general cutaneous surface. The velvety softness of these warts seems characteristic of this condition, and the affected area is hairless. The affection has no similarity to a pigmented mole of a hairfield. About the level of the thyroid cartilage a small detached portion projected backwards from the main mass, and at the upper and posterior extremity there was a line of warts extending towards the lobule of the ear, and in this line the warty condition became less marked and tended to be replaced by a strip of brown pigmentation as it approached the ear. The warty area was not unduly vascular, and, as shown in the photograph (Fig. 2), was sufficiently defined to allow of its entire excision, the site of the growth being thereafter occupied by a narrow, linear, and almost imperceptible cicatrix. The pathological report was "papillomatous structure well marked."

The condition is not a common one. I can only recall having seen one other example of it, and in that case the vertical limb was much narrower and the whole growth more linear. On several occasions, however, I have observed a brown pigmentation of the skin, also tending to be linear in arrangement, which had very much the same distribution as the warts in the case I have just described.

It is an abnormality, not a disease, and consequently treatment other than excision is not called for. The silky softness of the "warts" puts the condition beyond the pale of ichthyosis, while its congenital origin and the absence of hyperkeratosis distinguishes it from ordinary warts.

The abnormality is striking, and whether the brown discoloration marks warts or mere pigmentation its distribution cannot fail to suggest a relationship to the visceral clefts of the fœtus. Pigmentation and overgrowth are often interchangeable. In the lines of fœtal fissures neither is unknown, and in the above case it would appear that the overgrowths correspond to the second, third, and fourth cervical clefts.



[*Photo by R. S. Webster.*

EMERITUS-PROFESSOR SIR ALEXANDER R. SIMPSON.

OBITUARY.

SIR ALEXANDER RUSSELL SIMPSON, KT., M.D., D.SC. (HON. CAUSA), LL.D.

IT is a somewhat remarkable fact that twice only in the nineteenth century did the Chair of Midwifery and Diseases of Women and Children in the University of Edinburgh fall vacant and that on each occasion a Simpson, uncle and nephew, was elected to fill it. James Hamilton, who had succeeded to the professorship in the year 1800, was followed in 1840 by James Young Simpson, and on his death in 1870 Alexander Russell Simpson was selected to take his place. For more than half the century the Simpsons dominated Edinburgh obstetrics, and it was a fruitful and "benevolent despotism."

There is a striking symmetry in the life of the late Sir Alexander Simpson. When the century was thirty-five years old he was born in Bathgate, the second son of Alexander Simpson, bank agent, who was the elder brother to whom Sir James Simpson owed not a little in the form of support and assistance as he was working *his* way to the front; and when the time came Sir James was able to repay to the son what he had received from the father. Alexander Russell Simpson was educated at Bathgate Academy, and all his life long he took an affectionate interest in his birthplace, "the town lying half way between Edinburgh and Glasgow on the old coach road," as he described it.

After the Bathgate Academy came the University of Edinburgh, where, in 1856, Simpson graduated M.D., and then succeeded a visit for what is now called post-graduate study to the Continent, at Berlin, Halle, Vienna, Würzburg, and Montpellier. It was during this visit that he gained that knowledge of foreign languages which not only enabled him easily to keep in touch with Continental medicine, but also helped to make him *persona grata* at International Congresses and secured him the personal friendship of many European specialists. During the seven years which followed his return from the Continent, Alexander Simpson had all the advantages which close association with his uncle, who was then at the very height of his powers, could give; and both in his university work and in his private practice he was always beside him, sharing in his experience, coming into touch with the cosmopolitan group of visitors and friends which a man of such world-wide reputation drew to himself, and learning to act for himself and for his uncle on the many occasions when Sir James's work called him away from Edinburgh. He also developed the tutorial teaching of obstetrics in the University, and had already become an outstanding figure in medical Edinburgh before he went to devote himself to general practice in the great sister city in the west. For five years in Glasgow he worked early and late, establishing a great professional connection, consolidating his position as an obstetrician by his writings as well as his work, and strengthening his own character in self-reliance and a wonderful readiness to make use of all available means in emergencies, which those who afterwards worked under him used to marvel at. In these years in the west, also, he was already showing to all who cared to take note of it his intense and real interest in religion. Speaking in later years to the writer, he referred to the accusation which had been launched against him that he had preached on Glasgow Green, and said that, whilst he had contradicted the statement, he had qualified the contradiction with the remark that if he had had the chance he would have preached on Glasgow Green or anywhere else the unsearchable riches of Christ.

Alexander Simpson was now thirty-five years of age, and the first period of his life was at an end and a new one was beginning. Sir James Young Simpson died in 1870, and the months which followed saw a contest for his vacant Chair which had many dramatic moments and, to some, an unexpected issue, for the nephew was elected to succeed the uncle, although among the candidates there had been at least one other of great weight and many attainments. It was now that Simpson showed the qualities of tenacity, boldness, and determination combined with those of simplicity and true humility, of which, whilst his friends had certainly known the existence, they had probably not fully estimated the extent: and he needed such qualities if he were successfully to occupy the Chair still overshadowed by the massive personality of Sir James. That he did succeed stamps him the

. . . . "happy warrior,
Who, not content that former worth stand fast,
Looks forward, persevering to the last,
From well to better, daily self-surpast."

With the Chair of Midwifery in the University there went the charge of one of the two gynæcological wards in the Royal Infirmary, and soon there was added the physicianship of the Royal Maternity Hospital in the winter quarter of each year. In 1872 Professor Simpson married Miss Barbour, a daughter of Mr. George Barbour of Bonskeid, Perthshire, and sister of the present President of the Royal College of Physicians of Edinburgh; and thereafter for thirty-three years he continued to discharge the duties of his threefold office in University, Infirmary, and Maternity with ever-increasing signs of approbation from his colleagues and constantly growing evidences of popularity in the profession and among his students.

During the thirty-five years of Simpson's incumbency of the Chair of Midwifery and Diseases of Women in Edinburgh many advances were registered in all departments of medicine, and not least in those of obstetrics and gynæcology, and in every one of them the professor played a worthy part. In the introduction of the axis-traction principle into the construction of the midwifery forceps, in the perfecting of craniotomy by the invention of the basilyst and basilyst tractor, in the attempt to obtain uniformity in the terminology of obstetrics, in the development of the clinical teaching of gynæcology, and in the difficult pioneer work of establishing ovariotomy and hysterectomy as justifiable and indeed (now) as routine operations in the hands of surgeons, Simpson not only did his share but more than his share, and what he did not do himself he stimulated and encouraged others to accomplish. As has been aptly said of him "his mind was as hospitable as his home," and he was always ready to test and to try fairly every new plan of treatment, whether it was Apostoli's electrical method of treating fibroid tumours from Paris or Sneguiereff's vaporisation of the uterus from Moscow. To antenatal pathology and hygiene, that Cinderella subject among the elder sisters of midwifery and gynæcology, he held out a friendly hand, and he had prevision of the coming triumphs of preventive medicine in an efficiently protected and supervised pregnancy.

There were also many notable events during the thirty-five years from 1870 to 1905. There were the tercentenary celebrations in 1884 when Sir Alexander Simpson was a conspicuous figure and entertained as his guests the Virchows (father and son), and Pettenkofer of Munich ; there were many International Congresses (of London, Washington, Moscow, and Rome) in which he took part, always with distinction ; there was the meeting of the British Medical Association in Edinburgh when he presided over the Obstetrical Section ; there was the opening of the University New Buildings, of the new Gynæcological Pavilion in the Infirmary, of the extension of the Maternity Hospital, and of the M'Ewan Hall ; and there were numerous smaller occurrences such as special meetings of the Edinburgh Obstetrical Society (of which he was thrice President and at which he rarely indeed missed an attendance). More personal occasions were those of the semi-jubilee (1895) in the Chair, when his former assistants and many friends made him a presentation and entertained him at dinner, of the silver wedding (in 1897), and of his reception by the Edinburgh Medical Missionary Society (in 1907) on his return from a tour round the world during which he visited the mission stations in India and China.

In 1905, after he had occupied and adorned the Chair of Midwifery for thirty-five years, Professor Simpson resigned his office, certainly not because of failing powers, but because of a scrupulosity lest he might be hindering the progress of his greatly-beloved subjects by standing in the way of younger men. He was then seventy years of age, but he was doing as good if not better work in all departments than he had ever accomplished before. His friends were sorry, but he held on his way and carried through his resignation. He was not, however, suffered to retire without a great demonstration of loyalty when he gave his magnificent valedictory address (*Religio Obstetrici*) in the M'Ewan Hall, and this was followed by a spontaneous expression of admiration in the endowment of a bed in the Royal Maternity Hospital in appreciation of his services to that institution.

Professor Simpson had now reached three score years and ten. Born in 1835, he had been thirty-five when he entered on his duties as professor, and he had discharged these duties for thirty-five years. But there were fully ten more years of life before him, and in them he was not idle. Soon after his retirement he made his journey round the world; and if he was not present at every meeting of the Obstetrical Society, there could be no doubt that when he came he fell easily into his old place of leader. But, what was much to his mind, his retirement set him free to help in an even more complete way all the good objects with which he had identified himself—the temperance cause, public morals, evangelistic work of every kind, from the activities of his own Church (the United Free Church of Scotland) to the helpful visits of American evangelists, and foreign missionary enterprise in general and that among the Jews in particular. One great grief, however, darkened this Sabbatic decade of years—the death of Lady Simpson in 1911; but Sir Alexander's lifelong beliefs came to his aid, and he continued his way through life not less bravely if more solitarily.

To see the nations of Europe engaged in a terrible struggle was not the least of the griefs he had to carry in these past months, and there is something peculiarly sad in the fact that he met his death by a motor accident (on 6th April) in the streets of Edinburgh, darkened by reason of air raids threatened by the nation to whose medical men he had ever been most kind, appreciative, and hospitable. But he was returning from one of his beloved meetings (a temperance one), his mind filled with high and kind thoughts, and his death was instantaneous.

Long before his death honours began to come to Professor Simpson, culminating in the knighthood bestowed upon him by King Edward in 1906. He was an honorary Fellow of many scientific societies at home and abroad; he was President of the Royal College of Physicians of Edinburgh; to him was given the honorary D.Sc. of Manchester and the LL.D. of Edinburgh; and he might have presided at meetings for good causes on every night of the week if he had wished. His spirit, however, was not one which reached after such honours as the world gives, and to the very end he remained simple and humble, glorying only, but greatly, in his Lord and Master.

He was not a prolific writer, but when he took up his pen it was always to inscribe something which was well worth reading. His *Contributions to Obstetrics and Gynecology* (1880) contained his more purely medical work, although he also edited Sir James Simpson's *Clinical Lectures on Diseases of Women*, but he was at his best in his booklets which touched both the medical and the evangelistic aspects, as in *The Year of Grace* (1885) *in the University of Edinburgh*, *The Broken Heart of Jesus*, and *Jean Astruc*. As an operator he grew in strength with each year, and at the time of his resignation there were few who could claim better results in abdominal surgery than Sir Alexander Simpson. His lectures, too, were packed full of all that was new, although his hearers would have been better pleased if he had given them a clearer lead in the rejection of the worthless amongst the novel. So far as oratory went, he was at his best when speaking at an evangelistic meeting, his spirit touched with the greatness of his theme, his words burning with his message, and his face radiant.

There is no space left to tell more particularly of his devotion—no other word expresses it—to his students or of his interest in those who were happy enough to be his assistants. They were welcomed to his house, were made free of his advice, and when the chance came (with Professor Henry Drummond's great evangelistic work), Sir Alexander seized the opportunity to make that work more and more effective and to follow it up for their everlasting profit. Religion was a ruling and absorbing passion in Professor Simpson's life; no one who has seen his lips moving in silent prayer before he began to operate could be in doubt about that or about its genuineness. There are some who do not believe in religion; there may be a few who did not believe in Sir Alexander Simpson; but the writer never met anyone who did not acknowledge at once and freely that Sir Alexander believed in his religion. One is not surprised to find that written in his pocket-book, carried with him at the time of his accident, were the words: "He knoweth what is in the darkness . . . the way that I take." His religion was so real it entered into every part of his life, and as he lived so he died—"he never saw death for he ever saw God."

Sir Alexander leaves four sons and a daughter to mourn his going. His eldest son is Professor J. Y. Simpson, of the New College, Edinburgh, and his second son, Dr. Barbour Simpson, is one of the staff at the Royal Maternity Hospital. The funeral, which was private, took place on Monday, 10th April, and a memorial service, largely attended by public bodies and friends, was held in St. George's United Free Church on Wednesday, 12th April. J. W. B

RECENT ADVANCES IN MEDICAL SCIENCE.

MEDICINE.

UNDER THE CHARGE OF

W. T. RITCHIE, M.D., EDWIN MATTHEW, M.D., J. D. COMRIE, M.D., AND A. GOODALL, M.D.

EFFECT OF EMETINE ON THE TYPHOID BACILLUS.

BACKMANN (*New York Med. Record*, 12th February 1916) records an experimental study of the effect of emetinised blood on the typhoid bacillus. His object was to find whether the administration of emetine hydrochloride to a normal person produced in his blood any substances of an antibacterial nature, seeing that the injection of this drug has been recommended as a means of aborting an attack of typhoid fever. He first of all bled the patient, collected the serum and made various dilutions of this serum with broth, ranging in strength from 1 in 2 to 1 in 500,000. Inoculating each of these dilutions with a young culture of bacillus typhosus, he found by its copious growth after twenty-four hours that no antibodies were normally present. He next administered to the patient twenty doses emetine hydrochloride, ½ grain every six hours. At the end of this time blood was again withdrawn, similarly diluted and inoculated with typhoid bacilli. He found that this treatment of the patient produced no effect whatever in hindering the growth of the bacillus in any dilution.

VENESECTION AS A THERAPEUTIC MEASURE.

Lawrence (*Bost. Med. and Surg. Journ.*, 24th February 1916) puts in a plea for more frequent recourse to this procedure as a method of treatment for certain classes of cases. The conditions in which he thinks it is often beneficial fall into three groups: there are cases in which valvular disease of the heart is present with decompensation: secondly, cases of chronic nephritis with hypertension, cardiac hypertrophy, and evidence of impending circulatory failure and uræmia: thirdly, cases of "hyperpiesis" or essential hypertension which also are probably nephritic in origin. The writer withdraws usually about 10 or 12 ozs. of blood, and he does not hesitate to repeat the measure, though he says it is seldom called for again before a month has elapsed. He points out that the hæmopoietic powers of the body can restore the number of corpuscles to normal in two to five days after slight hæmorrhage, while after severe hæmorrhages, amounting to 3 or 5 per cent. of the body weight, the blood is restored in five to fourteen days. In therapeutic blood-letting the amount lost of course never approaches this figure. He has never found that repeated venesection has any bad effect upon the composition of the blood. Finally, he thinks that recourse should be had to blood-letting sooner than is usually done, and while it should not be performed in the absence of definite indications, it should not be delayed till the hope of success is gone.

PREVENTION OF PELLAGRA.

This disease has become alarmingly prevalent in some parts of the United States, and Goldberger (*Journ. Amer. Med. Assoc.*, 12th February 1916) gives a summary of some of the recent studies of the United States Public Health Service into its causation and method of prevention. While the cause of the disease has not yet been discovered, one of the striking facts in its distribution is its relation to poverty, and an investigation was therefore made as to whether it might not be possible to diminish the incidence of the disease by subjecting those who were exposed to it to a diet similar to that enjoyed by more affluent persons. The value of this dietetic factor was tested at two orphanages and a lunatic asylum where pellagra had previously been endemic, and where marked increases in the fresh animal food and protein containing legumes of the institution dietaries were made. After a year of this improved dietary it was found that among nearly three hundred persons who had previously suffered from pellagra only one showed a recurrence of the disease, while among the non-pellagrin residents no new cases of the disease developed. As a control at an isolated convict camp, previously quite free from pellagra, eleven volunteers were segregated, and, after a preliminary observation period, were placed on an abundant but one-sided diet of wheat, corn, rice, and the like, from which fresh meat and legumes were excluded. As a result six developed pellagra.

INTRASPINAL ADMINISTRATION OF MERCURIALISED SERUM.

Hunt (*Journ. Amer. Med. Assoc.*, 5th February 1916) has introduced the injection of mercurialised serum into the spinal canal as a variation of the similar mode of treatment in cases of syphilis of the nervous system by means of salvarsan. The method consisted in obtaining 50 c.c. of blood from the patient's arm, allowing the clot to separate in the ice-box overnight, and centrifuging the serum; to about 13 c.c. of the serum $\frac{1}{50}$th of a grain of mercuric chloride dissolved in distilled water was added; the mixture was diluted to 30 c.c. with sterile saline solution, and inactivated for half an hour at 58° C. This quantity was then injected within one hour. Forty-five cases in all were treated by this means. Out of ten cases of general paresis five showed no change, two became worse, and three showed increase of strength and diminution of tremor. Of eighteen patients with typical tabes dorsalis only four showed no improvement. In the other fourteen the improvement took place along the lines of gain in weight and strength, cessation of pain, regaining of bladder control, and in the spinal fluid a diminution of the cell-count and of globulin. In one case of cerebrospinal syphilis the change from being bedridden, emaciated, incontinent and apparently dying, to a state of active work about the wards in two months, was very marked. Out of four cases of syphilitic hemiplegia two showed marked improvement.

Use of Rice Diet.

Bulkley (*New York Med. Record*, 4th March 1916) describes the results of the use of a rice diet which he introduced originally for the treatment of skin diseases, but which he found useful also in the treatment of other inflammatory maladies. The diet consists of an albumin free and extractive free intake which gives the system an almost complete and absolute rest from nitrogenous stimulation. The diet consists exclusively of rice, butter, bread, and water. Salt also is allowed in the cooking of the rice, but milk and sugar are forbidden, as also are coffee, tea, and chocolate. The quantity of rice and of bread is unstinted, the patient is encouraged to drink much water, and about $\frac{1}{4}$ lb. of butter daily is allowed. In some cases the patient has subsisted for as long as three months on this diet with great benefit. Cases of acute eczema, lichen planus, psoriasis, and erythema multiforme have all in the writer's experience yielded to it. Some cases of asthma have been very much benefited, the respiratory trouble disappearing completely so long as the rice diet was continued. The writer draws particular attention to the fact that this is not to be confused with rice milk diet, milk being one of the forbidden protein-containing foods. J. D. C.

SURGERY.

UNDER THE CHARGE OF

J. W. STRUTHERS, F.R.C.S., AND D. P. D. WILKIE, F.R.C.S.

Magnesium Sulphate in the Treatment of Tetanus.

Meltzer (*Journ. of Amer. Med. Assoc.*, 1916, No. 13) has studied for a number of years the inhibitory properties of magnesium sulphate and as the result of his experimental work and a critical study of the clinical data available, describes in a practical way how the salt may best be used. In his introductory remarks he makes the point that the dominant action of magnesium salts on the living body consists in depression or inhibition. This was first brought to his notice by the finding that, while the injection of nearly every kind of salt into the brain of an animal produced a convulsive attack, the injection of a few drops of a 5 per cent. magnesium sulphate solution caused the animal to turn on its side and remain in a stuporose condition for hours. When a small amount of magnesium sulphate is injected intramuscularly and a little ether is inhaled, a profound anæsthesia follows and can be maintained for several hours and an increase in the dose of salt injected leads to complete muscular relaxation and eventually to a curare-like action with complete paralysis of motor nerve endings.

With regard to the treatment of tetanus Meltzer asserts that no other remedy is capable of relieving the furious symptoms to such a satisfactory degree as injections of magnesium sulphate. It may be used by subcutaneous, intraspinal, intravenous, or intramuscular injection. Subcutaneous injection acts slowly and has a cumulative effect ; intramuscular injection acts quickly with transitory effect ; while intravenous injection acts with extreme rapidity, and intraspinal injection acts fairly quickly and its effect is prolonged—it may be for 24 hours or more. One genuine danger is associated with the use of the salt—that it may cause respiratory paralysis, but with due care this is very rare. Temporary appearance of hyaline casts in the urine may follow the injections and in cases of outspoken nephritis the drug should not be used. In the absence of previous nephritis no significance need be attached to the effect of the injections on the kidney.

The following exact directions are given for the treatment of cases of tetanus.

Intraspinal Injection.—For adults this gives the best results. A 25 per cent. solution of magnesium sulphate in water should be used and 1 c.c. of the solution should be injected by lumbar puncture for every 20 lbs. of body weight. General anæsthesia with chloroform or ether should be used in making the injection in severe cases. After the injection the patient should be placed flat on the back. Soon after the injection, complete relaxation usually sets in and lasts for 24 hours or longer. It may be necessary to pass the catheter during this period and a rise of temperature may occur which need cause no alarm.

Subcutaneous Injection.—This method is incapable of relieving severe acute attacks but small doses used regularly three or four times a day gradually reduce the increased irritability and should invariably be used throughout the illness until tetanic symptoms disappear. For adults 1·2 c.c., and for children half that amount, of a 25 per cent. solution per kilogram of body weight should be used for each dose.

Intravenous Injection.—This may save life in an emergency when a patient's life is threatened by respiratory spasm. A 6 per cent. solution should be used and run in at the rate of 2-3 c.c. a minute until respiration becomes slow or shallow, when it should be discontinued at once.

Intramuscular Injection.—Combined with light ether anæsthesia injection of a few cubic centimetres of 25 per cent. solution may give prompt relief for some hours, but the action is difficult to control and is apparently not reliable for general clinical use.

In the rare event of respiratory paralysis following injections into the spinal canal, the needle should be reintroduced and the canal washed out with saline solution, artificial respiration being employed if necessary. If stoppage of respiration threatens with intravenous injection a small quantity of 2·5 per cent. solution of calcium chloride should be run in till respiration improves, and where breathing seems interfered with when a subcutaneous injection has been used, an intramuscular injection of 2·5 per cent. calcium chloride will remedy matters without bringing back tetanic symptoms.

The general lines of treatment may be summarised as follows:—On the onset of symptoms begin subcutaneous injections at once and continue till the patient is free. If symptoms become severe, give a spinal injection and, if necessary, repeat this once, using four-fifths of the first dose. The spinal injection will probably give time for the subcutaneous injections to take effect, so that the symptoms will be under control by the time the effect of the spinal injection has worn off. In case of grave emergency where spasms threaten to produce asphyxia, prompt intravenous injection may save life.

Meltzer states that the use of magnesium sulphate should not interfere with the use of tetanus antitoxin which may be and should be given concurrently.

THE OPERATIVE TREATMENT OF PYLORIC OBSTRUCTION IN INFANTS.

Downes (*Surg., Gynec., and Obstet.*, March 1916) reports an interesting series of 66 cases operated on by himself for pyloric obstruction due to congenital hypertrophic pyloric stenosis in infants.

In discussing the symptoms of the condition he states that a palpable tumour was present in every one of his cases and that its presence was noted by two or more observers, before operation, in every case. In cases where palpation of the abdomen was difficult it was found advisable to pass a stomach tube and so allow the escape of gas from the stomach. After this a light anæsthesia was induced with ethyl chloride and palpation rendered easy.

Downes believes that a palpable tumour, varying in size from the terminal phalanx of a little finger to that of a thumb, is invariably present and is pathognomonic of the disease. On the other common symptoms of projectile vomiting, visible peristalsis, gastric retention and rapid emaciation, he has no special comment to make.

As regards treatment, he is emphatic in stating that operative treatment should be undertaken when the diagnosis of congenital hypertrophic pyloric stenosis has been established. Of the various operative measures which have been suggested, two only have given results sufficiently good to warrant adoption, posterior gastro-enterostomy and partial pyloroplasty. Thirty-one of Downes' cases were treated by gastro-enterostomy and 35 by pyloroplasty.

The pyloroplasty employed was that introduced by Rammstedt, and consists simply in dividing the serous and circular muscle coats over the tumour and down to the mucous membrane. When this division is complete the mucous membrane pouts into the wound. Bleeding is usually absent or slight and easily checked. No attempt is made to sew the wound up in a vertical direction or close it in any other way and when the division of the muscle is complete and bleeding arrested, the stomach is dropped back and the abdomen closed.

Of the 31 cases treated by gastro-enterostomy 11 died, while of the 35 cases treated by Rammstedt's method, 8 died. The condition of the children in the two series was similar and Downes is of opinion that this form of pyloroplasty is the method of choice in dealing with congenital pyloric stenosis. Criticisms directed against it on the ground that it leaves an uncovered wound are based on theoretical grounds and have not been justified in practice.

RESULTS OF OPERATION FOR EXOPHTHALMIC GOITRE.

Judd and Pemberton (*Surg., Gynec., and Obstet.*, March 1916) have studied the results in 121 cases of exophthalmic goitre operated on in the Mayo clinique during the year 1909, in order to determine as accurately as possible the value of surgical treatment. They divide the cases into 5 groups. Group 1 consisted of 55 patients who were cured, meaning by that term completely relieved of their symptoms. In 16 of these primary resections of the thyroid gland were done, in 11, resections following ligations of the superior thyroid artery, in 24 ligations alone, and in 4, secondary ligations or resections following previous resections of part of the thyroid. In a number of cases they have found that relapse follows some years after apparent cure by ligations alone and they believe that resection should always follow ligations of the superior thyroid artery. Group 2 contained 22 patients who were practically cured, but had occasional slight evidence of the disease. In this group there were 11 primary resections, 4 secondary resections following ligation and 6 ligations as well as 1 late secondary resection. Group 3 contained 7 patients markedly improved but not really cured. Three of these had only simple ligations done. Group 4 contained 5 patients only slightly improved, while group 5 showed 8 patients who derived little or no benefit from operation. Six of these had simple ligations done without resection.

One hundred and seven of the patients were women, the remaining 14 adult males. The average length of time required to effect a cure was 17·9 months. In addition to the 121 patients referred to, 55 other cases were operated on during 1909. Twenty-one of these died, 7 soon after operation, and all of these died of hyperthyroidism, showing the importance of not operating until a serious effort has been made to tide patients over a critical period of their disease by rest, etc., and the value of proceeding by stages in acute cases. The net result of the investigation showed 45 per cent. of cures, 23 per cent. of "practical" cures, with an additional 4 per cent. showing some benefit.

J. W. S.

DISEASES OF CHILDREN.

UNDER THE CHARGE OF

G. H. MELVILLE DUNLOP, M.D., W. B. DRUMMOND, F.R.C.P.,
AND A. DINGWALL FORDYCE, M.D.

Night Terrors.

Tom A. Williams (*Arch. de Méd. des Enfants*, January 1916) discusses the causes and treatment of night terrors in children.

He regards night terrors as analogous to the phobias of older persons, and quotes a number of cases in which the symptoms could be traced to definite incidents in the child's experience, or to injudicious education or treatment. He advises not exactly a psycho-analysis after the method of Freud, but a careful interrogation designed to lay bare the root of the fear. If this is successfully attained, no further treatment may be necessary, but in some cases (as illustrated by examples) the child benefits by a sympathetic explanation of the symptoms, a process of re-education, exercises in "mental concentration," or even, in the case of older children, a study of the general psychology of fear.

Transfusion in Atrophic Infants.

Fischer strongly advocates (*New York Med. Record*, 5th February 1916) the transfusion of blood in certain cases of marasmus, atrophy, toxæmia; *e.g.* in the septic type of acute infectious diseases, and in hæmorrhagic affections such as the hæmorrhagic form of diphtheria. He recommends a method of transfusion which consists briefly in withdrawing from the donor, with the aid of a blunt-pointed steel needle and a record syringe, as many ounces of blood as desired for the transfusion. To prevent coagulation the blood is mixed with a 10 per cent. solution of citrate of soda, and the whole kept at blood heat in a sterile beaker until needed, or with the aid of Unger's apparatus direct transfusion can be done.

The technique is so simple that it can be successfully carried out in most cases by the general practitioner in the patient's home without any elaborate paraphernalia. But all must be done with sterile and aseptic technique.

With regard to the choice of a vein in the case of an infant, there are four places adapted for this method—(1) the median cephalic; (2) the median basilic; (3) the jugular; (4) the longitudinal sinus. The advantage of the sinus is the ease with which it can be entered from the anterior fontanelle. A number of cases are quoted illustrating the great and rapid benefit often resulting from this method of treatment. One danger which must be borne in mind, and which Fischer states to be liable to occur in about 2 per cent. of cases, is that the red blood-cells of either the donor or recipient will hæmolise or agglutinate by the serum of the other.

If time permits and the case is not a desperate one, we should determine if the serum of the donor agglutinates or hæmolises the patient's red blood-cells or *vice versâ*.

ACROCEPHALO-SYNDACTYLY.

This condition was first described by Apert before the Soc. Med. des Hôpitaux de Paris. Since then, according to Comby (*Arch. de Méd. des Enfants*, January 1916), ten cases have been published. In this condition the cranium is flattened behind in such a manner that the occipital protuberance is entirely absent. The occipital bone is smooth and vertical, and immediately below the lambdoidal suture the cranium slopes forwards and upwards, attaining its highest point at the level of the bregma, where it meets almost at an acute angle the plane of the forehead and the face; although the surface of the frontal bone is more or less vertical, it juts forward and is separated by a deep groove from the supraciliary arch. The fronto-nasal suture is widely open at birth and tends to remain gaping during the first three or four years of life, whereas the lambdoidal suture is always firmly closed. The face is also modified, the zygomatic and temporal diameters being increased. The nose is depressed and frequently there is exophthalmos. The teeth are irregular. In two autopsies, infants of two and three months, the base of the skull was found to be shortened antero-posteriorly, while the sagittal suture was open from the lesser fontanelle to the base of the nose, the aperture being widest in the fronto-nasal region. The hands and feet in these cases are affected by a syndactylism always of the same type. In the hands the union of the digits is more intimate at their extremities than at their bases. In most cases the nails of the three middle fingers are fused together. In some cases the number of digits is reduced to four, while in other cases there are six, seven, or even nine.

The condition is to be regarded as a definite clinical type resulting from unknown causes acting during intra-uterine life. The malformation of the skull probably results from a premature closure of the sutures of the base.

CRANIO-FACIAL DYSOSTOSIS.

A paper on this condition is published by Comby (*Arch. de Méd. des Enfants*, December 1915). The condition is hereditary and is characterised by a malformation of the skull not recognisable at birth; a malformation of the face affecting the chin and the nose: exophthalmos and strabismus. The condition has probably been confused with oxycephaly, but the fact that it is a hereditary and family malformation is in itself sufficient to distinguish it. The deformity of the cranium consists of a boss of moderate size which juts out in the position of the anterior fontanelle. This is prolonged laterally into a crest which terminates upon the parietal bones. In some cases the boss is smooth and hard all over; in others there exists a soft pulsating area. In one case there was an antero-posterior crest extending from the bossy swelling to the root of the nose. The head is markedly brachycephalic.

The face presents multiple malformations which give the subjects a characteristic appearance, namely, projection of the lower jaw, the lower teeth in advance of the upper, and prominence of the lower lip. The last noted is all the more obvious because the upper lip is small and is grooved by a transverse furrow.

In the majority of cases there is a marked enlargement of the bridge of the nose, which is curved, producing a profile suggestive of the beak of a parrot.

But of all the facial malformations the most striking is the affection of the eyes. This is so marked that at first sight one might imagine that one had to do with a case of exophthalmic goitre. The eyes are very large and prominent, a condition present from birth. Traumatic lesions of the globes are absent. The exophthalmos is, however, attended by ocular symptoms. The reactions to light and accommodation are normal, but squint—intermittent or permanent—is present. The most important symptom, however, is blindness, which may be complete and is due to progressive atrophy of the optic disc. In fact, blindness is the one really serious symptom which one meets with in these cases. The subjects frequently suffer from headache and convulsions, but these are slight and recur only at long intervals.

Mentally, the children affected are not imbecile in spite of their strange appearance; indeed they may be of quite normal intelligence.

There are no other characteristic malformations either in the skeleton or elsewhere. In fact, cranio-facial dysostosis is characterised solely by the cranio-facial deformities and the ocular lesions.

In a number of cases whose early history was ascertained it was found that no cranial abnormality was noticed at birth nor for some months afterwards. Then premature closure of the fontanelle was noticed, after which the head ceased to grow. The exophthalmos occurs very early and may even be present at birth. The deformities attain their maximum development very early, so that a young affected child may be the very image of his mother. The fits, when present, occurred only in early life.

Comby discusses the differential diagnosis in detail, but the only similar affection mentioned which need be referred to here is one described by Drieszynsky as *family hyperplastic dystrophy*, twelve cases of which he found amongst twenty-two members of a family. The condition is characterised by acrocephaly, with prominence of the occipital region; thickening of the facial bones and prognathism of the lower jaw; thickening and shortening of the phalanges, with deformities of the joints and impairment of movement; a barrel-shaped enlargement of the chest. Radiography of the skull indicates premature closure of the sutures with thickening and induration of the bones; smallness of the middle fossa, and abnormal largeness of the posterior; and in the phalanges, premature ossification of the cartilages and thickening of the periosteal laminæ of the bones.

W. B. D.

DERMATOLOGY.

UNDER THE CHARGE OF

W. ALLAN JAMIESON, M.D., AND R. CRANSTON LOW, M.B.

INFANTILE ECZEMA.

CHENEY (*New York Med. Journ.*, 20th October 1915) thinks that infantile eczema is mainly a nutritional disorder, the skin eruption being in most cases only the external evidence of a disordered metabolism. He regards it, in fact, as due to an intestinal toxæmia. In babies we frequently see it first on the face as a dermatitis, as if the skin had been chapped by the wind. This oozes and spreads to the scalp and the forehead. It is often associated with intertrigo in the folds, the glands become enlarged, and itching is severe. In most cases there has been overfeeding. The total quantity or some ingredient—the fat or sugar—may be in excess for the individual. In treatment, if the baby is breast-fed, it may have been nursed too frequently and the mother's milk may be too rich in quality. The supply must be lessened while the mother takes more exercise and reduces the milk, cream, and cereals she consumes. The baby may have one or two ounces of barley water before each nursing, so that it will not be tempted to drink so much. In bottle-fed babies, replacing what has been given by a skimmed milk mixture for a time will often cure. In other cases, particularly those with eczema and excoriations of the buttocks, patent foods may have been used too generously or too much sugar added. Locally, no soap and but little water should be used. Cleanse instead with cold cream or sweet oil. Lassar's paste with boric acid is often most curative.

The Antiseptic Dressing of Wounds in War.

The aseptic treatment by surgery in war (*Le Progrès Méd.*, May 1915) has had only disastrous results, and antisepsis has resumed, in this branch of modern surgery, all the rights of which it had been denied during some years in the operating theatres. While most of the antiseptics at present known and utilised give good results in intelligent hands, there is one point on which sufficient stress has not been laid—it is to secure a dressing which will remain antiseptic for a long time and thus protract the effect of bathing. This we have in iodoform gauze which is excellent if its odour and the accidents which at times follow its use do not cause its rejection. Vioform, which has a base containing iodine, chlorine, and quinoleine, has been known for some years as one of the best substitutes for iodoform without its drawbacks. Its employment provides us with one of the best permanent antiseptic dressings. Under it the most severely infected wounds lose their fœtor, the gangrenous portions become defined and separate, a layer of rosy granulations appears, while pain often diminishes. Should the dressing adhere, the removal of the gauze is facilitated by moistening the surface next the wound with vioform oil specially prepared for this purpose. Vioform in powder is useful in the case of wounds where suppuration has nearly ceased, and in this way epidermisation is favoured. Vioform is made at the Ciba Laboratory at Saint-Fons, Rhone, France, and free specimens are sent to surgeons and others desirous of trying it.

Keri-treatment: a New Heat Treatment by Paraffin.

Barthe de Sandfort (*Journ. de Méd. de Paris*, 28th March and 9th May 1914) under the term of treatment by keri-medication (from the Greek κηρός, wax) has introduced a new mode of employing paraffin, which promises to have a wide range of applicability. The principle consists in the fact that the skin can be exposed to paraffin in a fused state without inconvenience, at temperatures much exceeding water. The author has immersed himself in a bath of liquefied paraffin having a temperature of 122° Fahr. for half an hour. He has prepared a mixture of paraffins suitable for the treatment of burns or of wounds or abrasions which he calls ambrine. This, solid at ordinary temperatures, is melted, when required for use, by means of a waterbath. It is then allowed to cool a little and, while still fluid, is painted freely over the affected surface, or poured into the cavity of a wound, or introduced into a sinus. Then, before the ambrine has completely solidified, an extremely fine film of cotton-wool is spread over and this again varnished. Thus a sort of paraffin felting, as pliant as solid, is obtained. A bandage may be wound over this if thought necessary. This envelopment maintains its heat—between 110° and 112° Fahr.—for a long time, and the warmth and compression accelerate the local circulation and favour rapid granulation. It forms a protection under which the cell growth of nature proceeds without interference by the twitchings which inevitably occur under dressings which directly impinge on the tissues. As this dressing does not adhere, it can be removed and renewed without its causing pain. In this way the stump of an amputation which it has been found impossible to cover with a layer of skin, can be effectually shielded from injury. In the same way it admirably replaces a poultice in the treatment of lumbago or pains in the ribs, and demands much less frequent renewal.

Treatment of Obstinate Pruritus in Limited Areas.

The management of itching is of great importance in dermatology, since most of the skin affections show this symptom. Itching is mainly a symptom, rather than a morbid entity. Darrois (*Journ. de Méd. de Paris*, 23rd May 1914) has devoted an interesting article to this. Whether due to external irritation of a mechanical nature or to a systemic one from below the surface, it is a sensation essentially subjective, which accompanies frequently, though not necessarily, vasomotor and cutaneous objective phenomena. When a cutaneous surface is the seat of repeated and lasting itching, and cannot be protected from being scratched, it exhibits an aspect which has been termed by Brocq a state of neurodermatitis with lichenification. The situations which are most markedly attacked are the internal aspects of the thighs (especially in women), the neighbourhood of the anus, the mons veneris and labia majora, the scrotum, the popliteal space, the upper and outer portions of the leg, the neck, and the wrists. The sensation experienced varies from tickling, formication, pricking, or heat and burning, according to circumstances. It often comes on at a fixed hour, above all on going to bed. In vulvar pruritus the commencement may be at the labia majora, spreading to the inner part of the thighs, and finally reaching the mons veneris. The crisis is as a rule in the evening. The patient at first rubs gently, then harder, and ultimately tears the skin with her nails till it bleeds, when the acuteness of the sensation lessens. But the attacks may recur and prevent sleep, while at the same time exhausting the sufferer. When the anal region is implicated the skin becomes pigmented and thickened, and in long-standing instances studded with papules at the margin of the affected area. On the wrists, in some gouty persons, the itching is troublesome but moderate. Local anæsthetic creams or lotions have only a transitory effect, but the X-rays exert an action truly remarkable. The technique employed by the radiologist must be precise and adapted to each case. At the first irradiation all the itching parts should be treated. The dose of rays received by the skin is invariably 4 H. and the quality corresponds to No. 6–7 of the radiochromometer of Benoist. This is a testing exposure. The next day the itching has lessened and often ceases on the second or third day, and at the end of ten days the appearance of the eruption is somewhat modified. Then a second exposure is given, making the skin absorb the maximum dose it can bear without showing a radiodermatitis. As regards the future, the radiologist must be guided by results ; some places will stand much larger doses than others. On thickened patches in an elephantiasis-like skin harder rays can be used than on a part merely superficially involved. The interval between each exposure varies from twelve to twenty days. Of 200 cases so treated all have been cured save those where some complication existed, such as incontinence of urine, diabetes, &c. This treatment is, however, purely local and cannot displace any general management indicated.

Weeping Ezcema in the Field.

Unna (*Bost. Med. and Surg. Journ.*, 2nd Sept. 1915) recommends as a simple mode of treatment the use of an absorbent drying paste. A good one is composed of sulphur 10·0, carbonate of calcium 10·0, zinc ointment 80·0. This should be applied frequently to the weeping surface, but in small quantity. Its use obviates the necessity for bandages. W. A. J.

MENTAL DISEASES.

UNDER THE CHARGE OF

JAMES MIDDLEMASS, M.D.

The Treatment of Paresis and Tabes by Salvarsanised Serum.

THIS important paper by Dr. H. A. Cotton (*Amer. Journ. of Ins.*, July and October 1915, pp. 125 and 355) begins with a short account of the steps by which the etiology of these diseases was finally established. The importance of the discovery by Noguchi of spirochaetes in the brain in general paralysis is emphasised. Subsequent to this, attempts were made to treat the disease by the newer serum methods. Swift and Ellis in America treated syphilis of the nervous system by intraspinal injections, and Cotton has followed their method in the treatment of paresis and tabes. He claims that such injections of salvarsanised serum have given successful results in these diseases at many hospitals in the United States. This success depends on the stage of the process in which the disease is treated. It is only in the early stages that cure can be expected, knowing what we do of the pathological changes accompanying the advance of the disease. As the success of the treatment depends on an early diagnosis Dr. Cotton gives an account of the various methods used to determine this. In the order of their importance he gives the following:—(1) Lange's colloidal gold reaction in the cerebro-spinal fluid. (2) Noguchi's globulin test. (3) Enumeration of cells in the cerebro-spinal fluid. (4) Wassermann reaction in the spinal fluid. (5) The same reaction in the blood. The first is a difficult test and requires great care and experience, but he considers it the most reliable. The second is, however, very constant.

He next reviews the evidence for the absorption of fluid from the spinal canal into the cerebral cortex and concludes that this does occur. It is, however, more rapid from the intracranial subdural space.

The number of cases of paresis which without treatment show genuine remissions he puts, from examination of his own cases, at about 4 per cent. This estimate has to be made in order to compare it with the number of such cases obtained by treatment. If the latter is to get any credit it must show a considerably higher percentage than this. In all his cases treated (66) 15 per cent. have shown remission. If the cases be limited to those energetically treated by salvarsanised serum during the last two years in the early stages of the disease the number is reduced to 31 and the remissions are raised to 35 per cent. These could therefore not be all spontaneous remissions.

He then passes to the details of his cases. He first gives a chart of a control case, untreated, showing the variations in the results of the above five tests, along with the mental symptoms on the same dates and the body weight. The methods of treatment are then described. These consisted (1) of the intraspinous injection of serum from a patient who had received an hour before an intravenous injection of salvarsan (Swift-Ellis). (2) The intraspinous injection of serum to which $\frac{1}{4}$ mgr. of salvarsan had been added *in vitro* (Ogilvie). (3) The intracranial injection of salvarsanised serum similar to (1) (Wardner). (4) The intraspinous injection of serum to which 1/50 gr. bichloride of mercury had been added (Brynes). (5) The author's combination of various of the above methods. (6) Similar combinations of intraventricular injection (Hammond and Sharp).

He gives the results of the treatment to which his patients were subjected. There were 31 of these under treatment for a length of time sufficient to determine its value. In no case was it less than six months. The results were—Arrested, 11; much improved, 7; not improved, 7; died, 6. He adds that some of the cases had been ill for a long time and little prospect was entertained of their improvement.

The charts and descriptions of the arrested cases are interesting and valuable. Similar records are not given for the improved cases, but they are described in summary. The biological reactions in this group are specially discussed. In all the cell count was high originally and dropped rapidly under treatment. The globulin content was low as a rule and varied with the cell count. There is, however, much still to be learned as to the exact significance of these facts, however valuable they are from the diagnostic point. As to the Wassermann reaction its behaviour under treatment has been irregular. It was more easily modified in the blood than in the spinal fluid. Unfortunately the paper is not concluded in the last number of the journal which has arrived. But the above facts are probably more interesting and important than those relating to the cases not improved or who died.

INSANITIES DUE TO SYPHILIS.

In this paper Dr. Lind, pathologist to the Lunacy Department, Victoria, Australia (*Med. Journ. of Austral.*, 21st August 1915, p. 168) directs attention to the frequency with which changes in the viscera and blood-vessels commonly ascribed to syphilis are met with in post mortems on the insane. Clinically no history nor signs of the disease may be recorded, but the pathological examination reveals them unmistakably. Even a negative Wassermann reaction need not necessarily be conclusive of the absence of the disease. This is specially the case in congenital syphilis, where experience shows that the older the patient the more likely is the test to be negative. It is also apparently true that patients of the same age suffering from congenital syphilis do not all give a positive reaction. According to Linser one third of the children of syphilitic parents give no reaction. The writer finds that out of 20 idiot patients 9 gave a positive, 9 a negative, and 2 a partial reaction. Of two children, a brother and sister, one gave a positive, the other a negative. The writer records also a typical case of juvenile general paralysis which showed no traces of congenital syphilis. This is in accordance with Mott's experience, and the results of the Wassermann test in one syphilitic family are quoted to show that from a syphilitic father and mother three children gave a positive and three a negative reaction. He therefore suggests that there is a certain percentage of individuals in the community who are unrecognised syphilitics.

There are also certain types of insanity which on post-mortem examination show syphilitic changes. These are dementia præcox, epilepsy, and idiocy. These are insanities of youth, so that senile changes may be excluded. He gives statistics of changes regarded as syphilitic found post mortem in 22 cases of dementia præcox, 35 of epilepsy, and 54 of idiocy. These are very striking. He accordingly comes to the conclusion that the element which creates the vulnerability of the neurone and makes it break down under stress, commonly called heredity, is really syphilis. This conclusion he bases on the post-mortem findings of about 700 cases. He thinks the transmissible factor may go back as far as the great-grandfather, but this is not, and can hardly yet be, capable of strict proof.

Another argument leading to the same conclusion is the rarity of primary and secondary syphilitic lesions in the insane. They appear to possess immunity from infection, though cases of a second infection are on record. In the pathological report of the Victorian Lunacy Department the following statement occurs:—"Taking the last 100 post mortems at Kew, I find that the Wassermann test was applied in 20 cases, and in 16 instances was positive. In 56 of the 100 cases examined there were indications of syphilis, and of the 44 remaining the majority were senile, and findings which would suggest syphilis in the younger individual were allowed unchallenged on the score of senile changes. The findings of chronic fibrosis and arterial degenerations in the young subjects appear with great frequency in the post-mortem records."

It may be added by way of criticism of these views that in the report of the Royal Commission on Venereal Diseases the statement is definitely made that "syphilis may be regarded as a curable disease." From this it follows that re-infection is possible.

THE FLUID REACTIONS IN PSYCHIATRY.

In this paper, read at the meeting of the Victorian branch of the British Medical Association on 4th August 1915 (*Med. Journ. of Austral.*, 21st August 1915, p. 171) Dr. Callender describes results he has obtained by investigating the Wassermann reaction of the blood and cerebro-spinal fluid, and the globulin reaction and pleocytosis of the latter. The two last tests are described, the methods selected being Kaplan's and Fuchs-Rosenthal's. He considers the Wassermann test by itself is not conclusive and requires to be supplemented by the other two. There are some cases which are negative to the former which on post-mortem examination are found to be undoubtedly general paralytic. He points out the service rendered by these tests in clearing up the nature of the disease in some cases of idiocy, traumatic psychoses simulating general paralysis, manic-depressive insanity, alcoholic pseudo-paresis, melancholia, and cerebral tumour. He relates cases which had come under his own observation and investigation in which the diagnosis was completely cleared up after these tests had been made. As regards treatment the globulin and cellular tests give some indication of the extent to which the disease has affected the nervous system. Only when they are negative does antisyphilitic treatment seem likely to be successful.

ADRENALIN AS A TEST FOR DEMENTIA PRÆCOX.

Dr. Bayard Holmes in a short paper (*Alien. and Neurol.*, November 1915, p. 449) points out some peculiarities in the action of adrenalin in patients suffering from dementia præcox. He remarks that when a solution of adrenalin is placed in the normal eye no dilation of the pupil occurs. In a large proportion of cases of dementia præcox mydriasis appears and is so prompt and protracted that its action cannot be mistaken. This is somewhat on the same lines as the observation that in many cases of that disease no contraction of the pupil occurs when the conjunctiva is touched with the finger. In normal subjects it contracts in the same way as when light is suddenly thrown upon the eye. He further points out that in normal individuals and in other forms of mental disease when 0·5 c.c. of a 1 in 1000 solution of adrenalin is injected subcutaneously the blood pressure rises 40 to 80 mm. of mercury. In dementia præcox patients the same injection rarely produces a rise and sometimes there is a fall. These and other observations to which he draws attention by copious quotation from various papers seem to him to warrant the following conclusions :—

1. Adrenalin is the only chemically established organic secretion and furnishes an ideal base for physiological study.

2. The action of adrenalin in patients with the clinical diagnosis dementia præcox differs from its action in healthy persons and resembles its action in animals poisoned with ergotoxin.

3. The insensibility of patients with dementia præcox to the "pressor" action of adrenalin and its abnormal mydriatic action furnish a helpful means of diagnosis which promises, with the coincident application of the defensive ferment reaction, both suggestive therapeutic possibilities and avenues of hopeful research.

NEW BOOKS.

Medical Ethnology. By CHAS. E. WOODRUFF, M.D. Pp. viii. + 321.
London: William Heinemann (N.D.). Price 10s. 6d. net.

THE title of this book has not been very aptly chosen; it has not in itself any very clear or definite meaning, nor does it appear to us to be in any way accurately descriptive of the contents. The object of the author, so far as we have understood his argument—for the work is one in which, as the saying goes, it is difficult to see the wood for the trees—is to show that on the whole migrants, that is to say, men who have left the country of their race for other lands, tend to die out unless their new home has a climate similar to that in which their ancestors survived. Incidentally, it is assumed, and to some extent proved, that the struggle for existence operates more or less continuously in favour of the indigenous stock. A large part of the book deals with the factors which may be supposed to play a part in eliminating the unfit, by far the most important of these factors being, in the author's view, the various forms of radiant energy, light, heat, ultra-violet, infra-red, Röntgen, and other radiations; on the other side we have man's defences against these radiations, in the shape of pigmentation. The United States of America, which range from the temperate to the torrid zone, and which are inhabited by such a mixture of races as the world has nowhere else seen, offers a unique field for a study of this kind, and by implication Dr. Woodruff's work suggests the lines on which an American type may be in process of evolution.

It seems to the present reviewer that Dr. Woodruff has hit upon a very ingenious idea in ascribing to radiations so important a place in man's environment. Unfortunately, he has been more concerned to collect evidence in a rather uncritical way, than to marshal his facts in an orderly manner. If he had stated his argument as a series of propositions, and attempted to prove each step before proceeding to the next, the book would certainly have commanded more respect than in its present form.

In making this criticism the reviewer wishes in no way to detract from the industry which Dr. Woodruff has expended, nor from the general interest of the facts he has collected. All he pleads for is that a little more pains should be taken in laying down a formal argument in support of an hypothesis which has very wide bearings on the history of man.

The Treatment of Acute Infectious Diseases. By FRANK SHERMAN MEARA, M.D. Pp. 540. New York: The Macmillan Company. 1916. Price 15s. net.

THIS book by the Professor of Therapeutics in Cornell University has much to commend it. It strikes us as peculiarly well arranged, and it is very easy of reference and excellently indexed. The treatment of each disease is discussed in turn, and each chapter is completed with a brief but very helpful summary of the more detailed information given before. Professor Meara has avoided the error of suggesting a long list of remedies or methods of treatment for any particular condition, and has succeeded in indicating clearly his own preferences in each case. He appears to us to be an excellent guide to follow and, if it is perhaps too much to expect that all his recommendations should escape criticism, we may say that his advice is always very good and practical, and can hardly fail to be of the greatest assistance to any busy practitioner consulting the book in an emergency.

The author is, we are glad to note, a firm believer in open-air methods of treatment which he is ready to apply whenever possible. His views on alcohol are very strong and perhaps will not find such general acceptance as the rest of his recommendations. He denies it any stimulant properties and regards it as depressant, attributing any success with it in typhoid fever, for example, to its sedative action. In his view the stimulant properties of the open air may be much more relied on. As regards drugs he places caffeine first, then camphor, and strychnine as much less valuable.

The dosage of antitoxin recommended in diphtheria appears very adequate and avoids extremes. The good advice to employ intravenous injection in very severe cases is given, though it might have been well to mention that in small children it is almost impossible to find a vein without dissection. A very strong feature of the book is the attention paid to the question of diet which is not only considered most scientifically but also extremely practically. We may add that the volume is a handsome one and that the paper and type leave nothing to be desired. We wish it the success it deserves.

Vagotonia. By HANS EPPINGER and LEO HESS. Translated by W. M. KRAUS, M.D., and SMITH ELY JELLIFFE, M.D. Pp. iv. + 93. New York: The Nervous and Mental Disease Publishing Company. 1915. Price $1 net (Nervous and Mental Disease Monograph Series, No. 20).

BY the term vagotonia is meant an increased tone, or abnormal irritability, of the vagus system—called by the authors the autonomic system—which can be recognised, partly by the response of the organism to certain drugs—adrenin, atropin, and pilocarpin, and partly by certain morbid symptoms. The attempt is made to differentiate a group of patients suffering from functional nervous disorders from the general bulk of neuroses, and to regard vagotonia as the underlying pathological basis. There is, moreover, the vagotonic constitution, bringing with it a tendency to various nervous disturbances. The evidence in favour of the existence of vagotonia is drawn from physiological, pharmacological, and pathological sources, and the various data are pieced together to form a theory which is more ingenious than convincing. The conception of vagotonia put forward by the authors appears to us to rest on a very large body of hypothesis, with little real proved fact. There is at present a tendency in medicine generally to revert to the older humoral pathology and to attempt to differentiate constitutions and diathesis as our grandfathers did. No doubt such conceptions have a great deal to be said in their favour, but at present the whole subject is very intangible, and to those who were brought up on the cellular pathology it seems a far cry indeed from Virchow to the neo-humoralist school, if we may be allowed the term. However, as a basis for discussion and further observation, this study of vagotonia deserves consideration.

Chemical Constitution and Physiological Action. By Professor Dr. LEOPOLD SPIEGEL (Berlin). Translated with Additions from the German by C. LUEDEKING, Ph.D., and A. C. BOYLSTON, A.M. Pp. iv. + 155. London: Constable & Co., Ltd. 1915. Price 5s. net.

AFTER a short introductory chapter, which reviews the history of the subject and states in clear and simple language the issues which are subsequently discussed, the author passes to the consideration of the relations between the constitution and physiological effects of the inorganic compounds and of several of the more important groups of organic substances. The chapters on organic bodies include the aliphatic series, the members of the aromatic group, and a considerable number of nitrogen compounds. In these the influence of the various side chains which are attached to the fundamental nuclei is clearly brought out, and the conditions which will increase or reduce the activity of the nuclei are lucidly explained. The book fills an important gap in the literature dealing with the action of medicines, and can be cordially commended to those who wish to place their treatment on a rational and intelligent basis. It does not, of course, profess to take the place of the larger treatises which are already available for research workers in this department.

Rhizopod Protozoa: The Cause of Cancer and other Diseases, being Part IV. of "Protozoa and Disease." By J. JACKSON CLARKE. Pp. xiv. + 187. With 76 Illustrations. London: Baillière, Tindall & Cox. 1915. Price 7s. 6d. net.

IN this work the author boldly maintains the view that cancer is caused by mycetozoa. The evidence upon which he relies is drawn chiefly from a study of saprophytic mycetozoa and the comparison of certain features observed with those demonstrable in malignant growths. As is well recognised, such comparisons are rarely convincing. As a matter of fact much more extensive evidence of the same class has already been advanced by others in support of the same conclusion without influencing the almost universal conviction that cancer is not parasitic in origin. The author's position will perhaps best be understood from the concluding words of Chapter IX.: "Any one who will take the trouble to study a common mycetozoon until he or she is familiar with its chief aspects under the microscope, and then study any typical spontaneous cancer or sarcoma with critical and unprejudiced eyes, will soon realise that the protozoa are there, and that in such numbers and in such relation to the cells and tissues of the host that they account fully for the tumour and any extensions it may have."

Physiology for Nurses. By W. B. DRUMMOND, M.D. Pp. xii. + 210. London: Edward Arnold (N.D.). Price 2s. 6d. net.

THIS volume is an adaptation for the use of nurses of the author's *Elementary Physiology for Teachers* published some years ago. The success which that work met justifies the belief that this will receive an equally favourable reception. Dr. Drummond possesses in a high degree the art of writing attractively, and emphasising the essentials of a subject, and any nurse who masters this book may rest satisfied that she has an adequate knowledge of physiology. It may be added that a great deal of anatomical information is given, and the use of this book will render any special anatomical handbook superfluous.

NEW EDITIONS.

A System of Medicine. Edited by Sir WILLIAM OSLER, Bart., M.D., assisted by THOMAS M'CRAE, M.D., F.R.C.P. Second Edition. Five Volumes. London: Henry Frowde and Hodder & Stoughton. 1915. Price 35s. net per volume; £7, 15s. net per set. (*First Notice.*)

THE exhaustion of the first edition of this important work and the demand for a new edition within so short a period of time as six years must be, as the editors admit in their preface, a source of gratification. The publishers have adopted the sensible course of issuing the whole work at one time, instead of allowing the volumes to appear at intervals. It has also been possible by a certain amount of condensation and typographical rearrangement to reduce the number of volumes from seven to five. The new edition has been thoroughly revised throughout, and increased stress has been laid on diagnosis and treatment, while less is said about etiology and pathology. The chief alterations are mentioned in the preface; the historical sections, the articles on the biology of the mosquito, and on inheritance and disease, the introductory section on protozoa, and the article on life insurance have been omitted, while new, or practically new, articles on pellagra, beriberi, trypanosomiasis, Malta fever, and the electrical diagnosis of cardiac disease have been added.

Volume I. deals with bacterial diseases, infectious diseases of doubtful and unknown etiology, and the non-bacterial fungus infections or mycoses. The majority of the contributors are American, nearly all of them well-known names in this country. Among the English authors are Sir David Bruce, Dr. Farquhar Buzzard, Dr. Low, and Dr. Poynton. Japan is represented by Shiga, and Germany by Dr. Dunbar of Hamburg. Dr. M'Crae's article on typhoid fever is, it need scarcely be said, most valuable and full of details. He confirms the great prophylactic value of inoculation, which has almost stamped out the disease in the American army. One cannot, however, read an article of this kind on typhoid fever without a certain amount of local pride when one remembers how successfully the disease has been removed from the number of those commonly met with in this part of the world. Paratyphoid is shortly referred to; the problem of the agglutination tests in inoculated persons, which has received so much attention in connection with the typhoid group of infections in the army, is scarcely mentioned. Dr. Norris's article on pneumonia is satisfactory. Treatment is somewhat fully discussed, the general plan of expectancy being followed. He regards oxygen as comparatively useless, and rightly condemns the practice of giving stimulants at random. The etiology of tuberculosis is dealt with by Baldwin, the pathology by M'Callum, and the general clinical aspects of the disease by Laurason Brown. The article on cerebro-spinal meningitis is by Dr. Koplik, who in discussing the relationship between this and posterior basic meningitis states that the latter is the form cerebro-spinal meningitis of the epidemic type takes in children below the age of two. Most clinicians in this country would, we think, hesitate to subscribe to this opinion, and would rather incline to look on posterior basic meningitis as a sporadic, rather attenuated type of the epidemic infection. Among the other articles on bacterial infections that on acute poliomyelitis by Dr. Buzzard, on bacillary dysentery by Dr. Shiga, and the unusually full account of gonococcal infections by Dr. Cole, may be specially mentioned. Drs. M'Collom and Place, who write on scarlet fever, give a much longer incubation period than most English authorities—from 4 to 20 days, with an average of 10-14; on the other hand, they accept the modern view that desquamation is not *per se* a proof that the patient is still a source of danger, and state that in many cases the risk of infection is over in about four weeks. Dr. Poynton's article on rheumatic infections is extremely good. It is noteworthy that here, as well as in Sir William Osler's article on endocarditis in a later volume, the great importance of the tonsils as a point of entry of the infection is insisted on. Keeping in mind how little we can do when endocarditis has once declared itself, the bearing of this fact on prevention can scarcely be exaggerated. We are glad to note that Dr. Poynton enters a *caveat* against the use of very large doses of salicylates in endocarditis. This method is often dangerous and seldom efficacious.

In Vol. II. protozoan infections, and diseases caused by other animal parasites; diseases due to physical agents; diseases due to chemical and organic agents; diseases of metabolism; and diseases of the respiratory tract, are dealt with. England is represented by Sir David Bruce, Dr. Hutchison, Dr. Low, Sir William Osler, and Dr. Still. Dr. Low, who has revised the chapter on trypanosomiasis, shows that so far prophylactic measures based on measures for the destruction of the tsetse fly and of game have failed, and succinctly gives the reasons for this. Up to the present it must still be said that the disease is absolutely incurable. The suggestions as to the control of syphilis in Sir William Osler's article are in the main not dissimilar from those of the recent Royal Commission. The luetin test is referred to, but no opinion is expressed on its value. The chapter on diseases due to animal parasites, by Dr. Stiles, is unusually complete in every particular.

Parts III. and IV. of this volume deal with diseases due to physical agents (light, heat, X-rays, etc.), and with diseases due to chemical and organic agents (poisons, foods, and auto-intoxications). The chief place in the former is given, naturally, to the effects of X-rays. Dr. Alfred

Gordon regards sterilisation by this means as likely to supersede operative interference. Part IV. is much longer, and comprises a considerable variety of diseases. Carbon bisulphide poisoning is stated to be very rare in America, as the substance is probably not used in more than half a dozen factories. Poisoning by gases is shortly referred to: for the next edition a good deal of information, derived from German sources, as to the effects of chlorine and other poisonous gases will probably be available. The chapters on poisonous food—meat, fish, shellfish, milk, and vegetables—are very exhaustive, and dealing as they do with affections which are comparatively rare, and of which the symptoms are usually obscure, are a welcome contribution which will prove of great value for reference in these difficult cases.

Pellagra is definitely included in this section. The present-day importance of the disease in America is illustrated by the statement that on a conservative estimate there are at least 30,000 pellagrins in the United States. Dr. Beall leans to the idea that pellagra is due to eating maize, but he evidently does not adopt completely the theory that it is a deficiency disease, though its analogies to beriberi are pointed out. Herzog, writing on beriberi, regards the etiology as very obscure: he refers to Funk's vitamine theory, but apparently rather inclines to accept the view of the latest Japanese investigation, that it is of bacterial origin. The last chapter in this section, on auto-intoxications, forms a suitable prelude to the next section, diseases of metabolism. Dr. Taylor refers incidentally to a number of metabolic diseases and diseased states, *e.g.* diabetes, cystinuria, alkaptonuria, acidosis, obesity, regarded from the point of view of an intoxication process, although many of them find further notice under special captions. The general introduction on metabolism by Dr. Hawk has been so thoroughly revised as practically to constitute a new article replacing that by Chittenden and Mendel in the previous edition. It is an extremely good piece of work on a subject which has been less studied here than in America and Germany, and will be welcomed by many readers. It is followed by articles on gout, diabetes, obesity, rickets, and scurvy, the two last being sponsored by Professor G. F. Still and Dr. Robert Hutchison.

The last section of this volume treats of diseases of the respiratory tract. Dr. Dunbar's article on hay-fever is particularly interesting in reference to treatment. He lays down very clearly the principles on which pollantin should be used. It must be given regularly, the patient at the same time avoiding exposure to infection. The protection thus afforded wards off, or ought to ward off, a severe attack (which, if it occurs, leaves behind it heightened susceptibility and undoes much of the good of treatment), so that the patient who is, despite all efforts, constantly receiving a certain amount of the pollen toxin in the usual way, may gradually build up active immunity. The underlying idea is to procure temporary passive immunity, and to allow Nature to inoculate with small doses of toxin. Dr. Dunbar does not refer to Wright's method of using the toxin to produce immunity. All the other articles are of a high order, but do not demand special notice.

In concluding this first notice of Osler and M'Crae's system we cannot but express our admiration for the uniformly high standard which has been maintained by all the contributors. It is, of course, quite impossible to refer to each of them individually, and the selection has been guided by the play of the reviewer's fancy. Sir William Osler and Dr. M'Crae deserve our thanks as well as our congratulations on the completion of this most excellent *System of Medicine.*

Medical Lectures and Aphorisms. By SAMUEL GEE, M.D. Fourth Edition. Pp. viii. + 408. London: Henry Frowde and Hodder & Stoughton. 1915. Price 6s. net.

GEE'S *Aphorisms* is, in a very literal sense, a classic among medical writings. It is no part of a reviewer's duty to dwell descriptively on its contents: the older among us have for the most part read it long ago, and the younger generation, if they are wise, will read it sooner or later for themselves. Glancing through the *Lectures and Aphorisms* again after a number of years, one asks the question, Why has this particular book survived where most of its contemporaries have been forgotten? It is not a large book; it is not, in the modern sense, a particularly "scientific" book; it covers only a small part of medicine; it is not even an especially practical book. True, it is extraordinarily accurate; the author's clinical acumen, his originality, his erudition, impress the most casual; but other men as learned have written books which now remain sequestered in libraries and never see the light except at annual inspections. One great reason why the *Aphorisms* retains its interest and freshness is its style. Next to having ideas, the most important thing is to convince others that they are true, by the medium of the spoken or written word. In speech a man's earnestness carries conviction: in writing it is his selection of the proper words, and his arrangement of them, that decides, to a very large extent, whether they are remembered or forgotten. There is a good deal of truth in the French saying "*Le style, c'est l'homme,*" and this book is a good illustration of the connection between a man's mental habit and his mode of expression. Apart from a rather frequent use of archaisms, Gee's writing is simple, because he thought clearly (this is why simplicity is so difficult to attain); direct, because he never wrote except he had something new to say; and it is especially notable for what in journalese is called economy of language, but which he himself, significantly, calls thrift in words.

The impression of Dr. Gee which one gets from his books is amplified by the short memoir contributed by Dr. Wickham Legg, which greatly adds to the interest of this new edition. We see a certain scholarly aloofness, a disdain for enthusiasms begotten of the knowledge of human limitations, the sceptic's preference for facts over theories, and the student's dislike for amateurs and "practical men." He had a curious distrust of the experimental method of research, and on the whole a pessimistic outlook on therapeutics. One conceives that Dr. Gee was very much of an Englishman, in respect of a certain lack of sympathy with, or perhaps it is a want of interest and curiosity about, the work and outlook of other countries. Politically, he described himself as an Old Whig, and that, one thinks, gives a clue to his point of view. Throughout his life, Dr. Legg tells us, there was in him a dash of the Puritan—an aristocratic dislike for mean things, probably, almost as much as a religious sentiment. The five arts made no appeal to him: apart from his work, letters were his great recreation, and his favourite writers bear witness to what Dr. Legg says as to his complex character. His opinions were far from being fixed: they might undergo sudden changes, yet always (it appears to us) within a certain ambit. So far as life in general is concerned, he hated mediævalism and the Church of Rome; the Tractarian movement he held most dangerous, and yet he appears to have been quite out of harmony with most forms of higher criticism and rationalism. You suspect that he would have been more at home in an eighteenth century salon than a twentieth century hotel lounge, that he was more in sympathy with French than with German thought, and yet that his natural scepticism stopped far short of the rationalism of that period. His antipathy to Rome would not, one thinks, have induced him to tolerate Voltaire; the *Provincial Letters* (Pascal, Dr. Legg tells us, was a favourable author) must have appeared to him a more effective criticism. In our own literature, Milton, Pope, Dryden, Wordsworth, Mill, and Burke were the writers who seem to have influenced him most—affected is perhaps a more correct description—but his knowledge and memory were alike prodigious. Montaigne he admired, and Scott; Shakespeare he did not overvalue, nor did Dante appeal to his mind. Arnold was "the poet of despair," and Bain (compared to Mill) "a dunderheaded Scotsman." Modern politicians he held in contempt, except Gambetta, because of his work for national defence. Bismarck's apparent honesty filled him with profound distrust.

It is difficult to imagine Gee at home in a thoroughly Scottish *milieu* (to use a word he would have found most obnoxious), and humour, especially the northern variety, probably did not appeal greatly to him. Therefore let it be put to our credit that the only time Dr. Legg heard him laugh heartily was at the story of the

Highland minister who, forbidden by the Hanoverian government to name the Pretender in the pulpit, gave out the text "James the Third and Eighth: The tongue can no man tame."

As Gee's *Aphorisms* is a unique book, so are Dr. Legg's recollections of the author an intimate and stimulating appreciation of a very striking and curious personality, who was held in the highest respect professionally and as a man by those who were admitted to the very real privilege of his friendship.

Medical Jurisprudence, Toxicology, and Public Health. By W. G. AITCHISON ROBERTSON, M.D., F.R.C.P.E., F.R.S.E. Third Edition. Pp. 656. With 51 Illustrations. London: A. & C. Black, Ltd. 1916. Price 10s. 6d. net.

THE fact that a third edition of this handbook has been called for proves that it has filled a place in the student's requirements. The teaching it contains is sound, and when the matter is elaborated by lectures the reader of this book will have the information he actually desires ingrained. Perhaps, if criticism were to be raised, it would be to say that the volume is stronger on the forensic than it is on the public health side. But the criticism is not such as to suggest weakness. The student of public health will find himself well equipped if he digests the information contained. This edition has had new illustrations added to it; also new chapters on medical inspection and industrial hygiene have been embodied.

Wheeler's Handbook of Medicine. By WILLIAM R. JACK, M.D., F.R.F.P.S.G. Fifth Edition. Pp. xvi. + 592. Edinburgh: E. & S. Livingstone. 1916. Price 8s. net.

To attempt a complete synopsis of medical diseases in a book of this size argues a good deal of temerity on the part of the author, yet we think that in this case it has been justified, and that if this little text-book is used, as doubtless Dr. Jack intends it to be used, merely as a convenient medium for rapid revision of knowledge acquired otherwise, it deserves a word of praise. The contents are well arranged, the essentials of medicine are concisely stated, and the amount of space devoted to different disease is well proportioned.

On the other hand, there is always the risk that the existence of books of this class tends to lead to cramming—a danger which, however, is perhaps less in the case of medicine, when the essentially practical character of the examination is considered, than in most other subjects. Wherefore Dr. Jack's book may be recommended as an adjunct to, not a substitute for, one of the larger manuals.

NOTES ON BOOKS.

Notes on Military Orthopædics, by Paul Bernard Roth, M.B., F.R.C.S. (Henry Kimpton, price $1 net), consists of brief descriptions of the more common deformities met with amongst soldiers, with directions for their mechanical treatment. A short section is devoted to the subject of artificial limbs. A table of the approximate cost of the appliances described is added and is useful, but the name of the makers is superfluous, as they may be obtained from any reputable firm.

Painless Childbirth, Eutochia, and Nitrous Oxid-Oxygen Analgesia, by Carl Henry Davis (Chicago, Forbes & Co., price $1). This small work is a plea for the use of nitrous oxide-oxygen anæsthesia in obstetrics, and for higher standards in obstetrical practice. The methods of administration are detailed and the author's experience in use of the anæsthetic analysed. He makes out a satisfactory case for the nitrous oxide-oxygen combination as against the scopolamin-morphia "twilight sleep," which has had a temporary vogue in America. The author credits Dr. J. Clarence Webster with having been the first to employ this anæsthetic in operative obstetrics when the use of ether and chloroform was contra-indicated, and with having gradually extended its use to all types of cases. This is sufficient to justify us in commending the work to the notice of our readers, without accepting the offer of the publisher to "supply electrotype or photograph of the author on request."

The second, third, and fourth parts of *The Medical Clinics of Chicago* (W. B. Saunders Company, Philadelphia, price 35s. per year), a new bi-monthly publication, of which the first issue was recently noticed in this column, contain a number of clinical lectures of considerable interest. They are typical examples of post-graduate cliniques on interesting cases, and in many instances give verbatim reports of the discussions between teachers and students. A feature of these cliniques is the prominence given to modern diagnostic and therapeutic procedures, the technic and significance of which is fully considered. In each part 8 or 9 cliniques are reported, and the range of subjects is wide. There can be little doubt that this method of presenting the subject has considerable advantages in many respects; the articles are easy to read, and the various points made are forcibly put in an interesting way. One gets the impression that such a publication as this will be of great use to practitioners in the way of keeping them informed as to the progress of clinical medicine.

The seventh edition of *Gould's Pocket Medical Dictionary* (Lewis & Co., London, 1915, price 5s. net) contains 35,000 words. It is of small size, is printed in clear type on thin but opaque paper, is flat bound in a flexible case so that it opens readily—all of which are desiderata in a dictionary. In the preface it is stated that 380,000 copies of Gould's medical dictionaries have been sold, a fact which in itself is a proof of the need for such a work. On comparing it with other recent medical dictionaries we found it to be very complete; the definitions, though short, are perfectly adequate. There are a number of useful tables—anatomical, bacteriological, posological, and others. The only criticism we have to make is the somewhat unusual system of rubrics. The rubric word at the top of each page is the last word on each page, instead of, as is more usual and convenient, the first word of the left hand and the last of the right hand page. Dr. Gould, no doubt, has some reason for this departure from the ordinary place, but it is a little confusing until one becomes accustomed to it.

ANALYTICAL REPORTS.

NASAL ALKALINE COMPOUND WITH COCAINE.

(BURROUGHS WELLCOME & CO.

WE have received from Messrs. Burroughs Wellcome & Co. their new nasal alkaline compound put up in "Soloid" form. In addition to the borax and sodium chloride which the original preparation contained, a sixth of a grain of cocaine hydrochloride has been added. This new product has been found especially useful in the treatment of nasal conditions accompanied by pain, and may be used as a spray or douche as indicated.

BOOKS RECEIVED.

BELL, W. B. The Sex Complex	(*Baillière, Tindall & Co*)	12s. 6d.
BING, R., and C. L. ALLEN. A Text-Book of Nervous Diseases	(*Wm. Heinemann*)	21s.
CATECHISM Series. Medicine. Part III. Second Edition	(*E. & S. Livingstone*)	1s.
ENCYCLOPÆDIA Medica. Edited by J. W. Ballantyne. Second Edition. Vol. III. Chloroform to Dyspnœa	(*W. Green & Son, Ltd.*)	20s.
FOSTER, M., and J. F. GASKELL. Cerebro-spinal Fever	(*Cambridge University Press*)	12s. 6d.
GASKELL, W. H. The Involuntary Nervous System	(*Longmans, Green & Co.*)	6s.
GROVES, E. W. H. On Modern Methods of Treating Fractures	(*J. Wright & Sons, Ltd.*)	7s. 6d.
HEALY, WM., and MARY T. HEALY. Pathological Lying, Accusation, and Swindling	(*Wm. Heinemann*)	10s. 6d.
HEWER, Mrs. J. G. LANGTON. Our Baby. Fifteenth Edition	(*J. Wright & Sons, Ltd.*)	1s. 6d.
JUNG, C. G., and C. E. LONG. Collected Papers on Analytical Psychology	(*Baillière, Tindall & Cox*)	12s. 6d.
MAGILL, E. M. Notes on Galvanism and Faradism	(*H. K. Lewis & Co., Ltd.*)	4s. 6d.
OLIVER, Sir THOMAS. Occupations: from the Social, Hygenic, and Medical Points of View.	(*Cambridge University Press*)	6s.
RUSS, C. A New Treatment for Gonorrhœa	(*H. K. Lewis & Co., Ltd.*)	3s.
SCOTT, T. B. Modern Medicine and some Modern Remedies	(*H. K. Lewis & Co., Ltd.*)	4s. 6d.
VECKI, V. G. Sexual Impotence. Fifth Edition	(*W. B. Saunders Co.*)	10s. 6d.
WOODRUFF, C. E. Medical Ethnology	(*Wm. Heinemann*)	10s. 6d.

EDINBURGH MEDICAL JOURNAL.

EDITORIAL NOTES.

The New Principal.

THE Curators of Patronage have appointed Sir James Alfred Ewing, C.B., M.A., LL.D., Principal of the University, in succession to the late Sir William Turner. Sir James Ewing, who is at present Director of Naval Education at the Admiralty, was educated at Edinburgh University, and has devoted special attention to engineering and physical science.

The late Dr. Allan Jamieson.

WE have received for publication the following letters :—

35 CHARLOTTE SQUARE.

DEAR DR. WALKER,—It was my husband's wish that his collection of plates and drawings illustrating the diseases of the skin should continue to be utilised in teaching the students of the Edinburgh Medical School, and I feel that I fulfil his wishes when I ask you to accept them in trust for yourself and your successors for this purpose.—Yours sincerely,
MABEL JAMIESON.

8th May 1916.

DEAR MRS. JAMIESON,—I accept very gratefully the offer contained in your letter of Dr. Allan Jamieson's very valuable collection.

I shall arrange to have each plate marked with his name, so that future generations of students may be kept in mind of the founder of the Skin Department.

May I say how very much I appreciate the desire of my old friend that the gift should be made through me.—Yours very sincerely,
NORMAN WALKER.

Major Priestly, Captain Vidal, Captain Lander.

THE Royal College of Physicians of Edinburgh has offered its Diploma of Membership to Major H. S. Priestly, Captain A. C. Vidal, and Captain J. L. Lander, in appreciation of their conduct as physicians at Wittenberg. Their countrymen are not likely to forget what happened at Wittenberg, and how six British doctors, unaided, fought typhus there for half a year. The College, in offering to the three survivors the highest mark of respect and admiration it has in its power to bestow, only translates into action the impulse which stirred all the medical profession on hearing the story of the prison camp of Wittenberg.

Oberstabsarzt Dr. Aschenbach.

His Imperial Majesty the German Emperor has decorated Oberstabsarzt Dr. Aschenbach with the Iron Cross as a reward for his military virtues. Oberstabsarzt Dr. Aschenbach has never, so far as is known, attained any great distinction in his own profession. His name does not appear in *Wer Ist's?* nor even in the pages of *Minerva.* He can scarcely be regarded as an efficient administrator or organiser, and, judged even by the German standard, he appears to lack such rudiments of common humanity as the study of medicine instils into the most unresponsive material. Some day, perhaps, we shall learn in what manner his professional colleagues have shown their approval of Dr. Aschenbach's success in avoiding all personal danger—in preserving, not his professional honour, but his skin, intact. He might be delegated to represent Germany at the first International Hygienic Congress after the war. Fully clothed in his protective suit of clothes, mask, and rubber gloves, and wearing his military decorations, he would form the German Empire Exhibit No. 1: "Schutzmittel gegen ansteckende Krankheiten. Wittenbergsche Verfahren. Musterhaftes Beispiel. *Hors concours.*" Thus would both Germany and Dr. Aschenbach be honoured.

Amputations and Amputation Stumps.

A useful memorandum on amputations and amputation stumps has been issued for the benefit of medical officers serving in military hospitals at home and abroad. It has been compiled from the point of view of those who are responsible for the fitting of artificial limbs, and is largely based on the experience acquired at Roehampton hospital. The opinions formed of the results of different methods of amputating and of particular amputations are, of course, based on military experiences and are applicable only to the conditions met with in the field, and the advice offered is governed by the same considerations. Within these limits the small brochure before us is most instructive, but the conclusions contained in it must not be applied to civil practice without distinct reservations.

With regard to the art of amputating, as in so many other matters, the war has put back the hands of the clock, and we now find the rules which governed our forefathers of pre-antiseptic days again in full force. The "guillotine" amputation is spoken of as "excellent"—but with the qualification that it must be followed by "the neatest possible secondary amputation as soon as the wound is clean." A modified approval is expressed of the application of continuous extension to unsutured flaps as a means of preventing their retraction, and so avoiding the necessity for secondary amputations. Disarticulation, except at the hip and shoulder, is not recommended from the point of view of the artificial-limb maker, as there is not room for the fitting of a joint at its proper level in the artificial limb.

These reversions to practices long obsolete are doubtless often unavoidable in the presence of the dangerous infections of modern war-wounds, but there is room for difference of opinion as to the superiority of the guillotine operation over an amputation by short flaps left unsutured, even if the latter method does involve dividing the bone at a slightly higher level. The secondary amputation which must follow the guillotine operation entails a greater sacrifice in the length of the stump in the long run.

The directions given in the memorandum for amputation at different levels are most useful and should be carefully studied by all young medical officers. The elaborate details of set amputations of the thumb, the fingers, and the hand which they have learned in the schools must be put aside, and the most rigid economy exercised in saving every scrap of tissue from a shattered hand. "A thumb, or part of a thumb, together with some portion of fingers or hand to which it can be opposed, is more useful than any artificial contrivance which can be fitted."

A preference is expressed for short equal antero-posterior flaps in the forearm, and as the pressure of the artificial limb falls on the circumference of the stump, a terminal scar is desirable. Above the middle of the forearm the longer the stump is the better for fitting an artificial limb.

In the upper arm the lower the amputation is done the better, but disarticulation at the elbow-joint offers no advantage over amputation immediately above the joint. Short equal flaps should be formed if possible, or a circular incision made. Special care should be taken to prevent adduction contracture at the shoulder-joint. As disarticulation at the shoulder-joint or amputation immediately below it precludes the use of an artificial limb, every effort should be made to preserve at least two inches of the limb. Even this short stump, as measured from the anterior axillary fold, preserves a considerable amount of mobility.

In the lower extremity conservatism is much less important. Breadth of stump and weight-bearing capacity are of greater importance than length. Fragments of toes should not be preserved, and even the great toe should be sacrificed if it is the only one spared by injury or disease.

It is very gratifying to us to read that "by far the best amputation in the region of the foot is *Syme's amputation*." This has long been a matter of faith in the Edinburgh School, and now it has received the official imprimatur. "No other amputation gives such uniformly good results, and we are of opinion that whenever Syme's amputation is feasible, no other amputation . . . should be performed in the region of the foot." We can heartily subscribe to this favourable opinion of Syme's amputation in the surgery of war, without, however, joining in the general condemnation of the procedures which have emanated from the lands of our allies. Chopart's, Lisfranc's, and Pirogoff's operations are capable of yielding excellent results in suitably-chosen cases, and even from the point of view of the artificial-limb maker a Chopart's or a Lisfranc's stump presents distinct advantages.

"The best amputation through the leg is situated about four inches below the level of the knee-joint"; and the functional result is better than that obtained by a lower amputation. As a "kneeling-stump" is most undesirable, great care must be taken to keep the stump extended and to prevent flexion contracture.

There does not appear to be any serious objection to disarticulation through the knee, although amputation above the condyles admits of an artificial joint being employed at the natural level and without lateral attachments which make the limb clumsy. The difficulty of obtaining sufficient soft tissue to cover the broad condyles is a serious obstacle to this operation under septic conditions.

"The stump in the thigh should *always be as long as possible*, so that the greatest amount of leverage is available to move the artificial limb." A long anterior and a short posterior flap give the best results, and care must be taken to prevent adduction contracture of the stump.

As it is very difficult to fit any satisfactory artificial limb after disarticulation at the hip-joint this operation should only be done when no lower one is possible. An anterior racquet incision gives the best results for the purposes of the artificial-limb maker.

The memorandum lays down the usual conditions for a good stump, and goes on to say that "as a general rule four months should elapse from the date of amputation before any attempt is made to fit an artificial limb." The presence of sinuses, necrosis of bone, bulbous nerve-ends, adherent cicatrix, osteophytic outgrowths, unsound scars, and contracture in the neighbourhood of the joint immediately above the amputation, are among the conditions which delay the fitting of an artificial limb.

The exigencies of surgical work on the field and the prevalence of infective complications render it inevitable that a large proportion of the stumps which reach the military hospitals at home should fall short of the standard which we have been accustomed to set for ourselves in civil practice, but we feel that a careful study of this memorandum and an intelligent application of the simple rules and considerations laid down in it should do much to mitigate the suffering and to shorten the convalescence of those unfortunate men who have lost their limbs in the service of the country.

Inherited Syphilis and Mental Defect.

THE part which inherited syphilis plays in the production of mental defect is far from settled. Excluding certain well-known definite types of dementia occurring in infants and children as the direct result of congenital syphilis—types which, after all, form but a small percentage of all forms of feeble-mindedness—investigations by different observers on the incidence of syphilis as shown by the Wassermann and other reactions have led to quite incongruent results. Thus, the frequency of a positive Wassermann among cases of simple primary amentia (the large residuum of mental defectives which remains when the definitely classifiable cases—microcephaly, mongolism, etc.—have been deducted) is given by different workers as from 2 per cent. to 55 per cent.

It is obvious that an investigation of this kind raises two issues: first, one of actual statistical fact as to frequency; and, second, the inference to be drawn from the figures. The need for keeping these two issues distinct is suggested by some recent American work on Mongolian imbecility, which seems to us to raise the whole question of the interpretation of these tests in connection with the etiology of mental defect.

Mongolian imbecility, or mongolism, is one of the best known, one of the most distinctive and easily recognisable, and one of the most common forms of mental defect. Its peculiarities were first described by Langdon Down in 1886, and though the picture he drew has been amplified by others, it has never been materially altered. The disease is relatively common in Great Britain, where mongols form at least 10 per cent. of all defectives—more if infants be included, for many mongols die in infancy. Mongolism is thus a disease which has been thoroughly studied in this country, and this particular question of its relation to syphilis has been thrashed out from the clinical standpoint since it was first raised by Dr. Sutherland in 1899. It may be stated with some confidence that inherited syphilis plays no part in its etiology. It is as certain as anything in medicine can be that the disease often occurs in families in which a syphilitic taint can be absolutely excluded. This, and the fact that it has many of the stigmata of a developmental disease, disincline us to look on inherited syphilis, even were it occasionally present, as anything more than an accident.

In estimating the meaning of Dr. Steven's work on the blood and cerebro-spinal fluid of mongols, in a large percentage of whom he obtained positive Nonne, gold chloride, and Wassermann (6 out of 18 cases gave a positive Wassermann in the blood, and 2 out of 18 in the cerebro-spinal fluid), it is necessary to think of the clinical side as well. There is, as has been said, much evidence that mongolism has nothing to do with syphilis—quite as much as there is, let us say, that many cases of tabes are due to that disease. Steven's results, assuming (as there is every reason to do) that they are accurate, prove at most that a fairly large proportion of mongols drawn from the population of a State school for the feeble-minded are tainted with syphilis, but it is not a warrantable inference that the developmental vice from which they suffer is a result of the specific infection.

These researches, indeed, appear to be of value from another point of view—as control experiments, and it is to be hoped that they will be extended to a larger number of cases. For should it be found that there is a generally high incidence of inherited syphilis among the mongols of the population of State institutions, it would show that a good deal of caution must be exercised in interpreting similar data in other types of mental defect, the cause of which is entirely obscure. A high correlation between parental syphilis and feeble-minded offspring does not necessarily involve a sequence of cause and effect. It might imply no more than that the parental characteristics predisposing to mental defect also predispose to the acquirement and transmission of syphilis—a relationship between the two, in fact, not very unlike that which many careful observers believe to exist between parental alcoholism and amentia in the offspring.

CASUALTIES.

DIED on service, Fleet-Surgeon WILLIAM RUDOLF CENTER, R.N.V.R., in hospital at Malta on 28th April.

Fleet-Surgeon Center took the M.B. and C.M. with honours at Edinburgh in 1893, and the M.R.C.S. and L.R.C.P. Lond.) in 1896. Entering the Navy in 1896, he became Fleet-Surgeon in 1912.

DIED on service, Lieutenant GUY VERNEY FLETCHER, R.A.M.C.

Lieutenant Fletcher was educated at Melbourne University, and took the Scottish Triple Qualification in 1899, and also the M.R.C.P.(Edin.) in 1901. He took a temporary commission in the army in May 1915.

DIED on service, Lieutenant A. L. THORNLEY, R.A.M.C.

Lieutenant Thornley studied medicine in Edinburgh University, where he graduated M.B., Ch.B. in 1907. He was in practice in Cardiff as an ear, nose, and throat specialist when the war broke out.

DIED on service, Major **FRANK CHARLES PEREIRA**, Madras Medical Service, in the General Hospital, Madras, on 9th April, aged 53.

> Major Pereira took the Scottish Triple Qualification in 1886, and entered the Indian Medical Service as surgeon on 31st March 1888.

DIED on service, Captain **ROBERT DONALD**, R.A.M.C. (T.F.), in Chelsea on 3rd May, aged 55.

> Captain Donald was educated at the University of Glasgow and at Anderson's College, Glasgow, and took the Scottish Triple Qualification in 1884.

The following medical students appear in recent casualty lists :—

DIED of wounds, Second-Lieutenant **WILLIAM B. BINNING**, Machine Gun Corps, aged 19.

> Lieutenant Binning was studying medicine at Edinburgh when the war broke out. He got a commission in the 11th (Service) Battalion, Royal Scots, in February 1915.

DIED of wounds, Second-Lieutenant **A. J. A. EDWARDS**, attached Loyal North Lancashire Regiment.

> Lieutenant Edwards was a native of Durban, South Africa, and a medical student at Edinburgh University.

WAR HONOURS.

The name of the following officer is included in the list of officers who have been awarded the Distinguished Service Order :—

Temporary Captain **ROBERT M'COWAN HILL**, R.A.M.C. (attached 2nd Battalion Argyll and Sutherland Highlanders), for conspicuous gallantry and devotion to duty. Captain Hill graduated M.B., Ch.B.(Glasg.), and practised in Upper Tooting before the war.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.

AT a meeting of the College held on 18th May, the following gentlemen having passed the requisite examinations were admitted Fellows :—Dines C. Chakravati, L.M.S.(Calcutta Univ.), L.R.C.S.(Edin.); William W. Hoare, M.R.C.S.(Eng.), L.R.C.P.(Lond.), M.D.(Brux.); George R. Livingston, M.B., C.M., M.D.(Edin. Univ.); Alfred C. Sandston, M.D., Ch.B., M.D.(Edin. Univ.); Neil F. Sinclair, M.R.C.S.(Eng.), L.R.C.P.(Lond.); Herbert M'L. Staley, M.R.C.S.(Eng.), L.R.C.P.(Lond.); Muhammed A. Wajid, M.B., Ch.B., M.D.(Edin. Univ.).

At the same meeting the Bathgate Memorial Prize was, after a competitive examination in Materia Medica, awarded to Miss Marguerite Robertson, Stirling; and the Ivison Macadam Memorial Prize in Chemistry was awarded, after competitive examination, to Miss Janet Grant.

Indian Medical Service.

It was recently announced in the press that after the open competitive examination held last July for admission to the Indian Medical Service no similar examination would be held during the continuance of the war, but that such appointments as might be required to meet the absolutely indispensable needs of the Service would be made by nomination by the Secretary of State. To assist him in making these appointments, which, as already announced, will be limited in number to the absolutely indispensable needs of the Service, Mr. Chamberlain has appointed a Selection Committee, who will summon and interview such applicants as may appear to be *prima facie* suitable, and make recommendations for appointment.

Applications for appointment should be addressed to the Secretary of the Military Department, India Office, Whitehall, S.W., and should contain concise particulars of the applicant's medical degrees and career. Applicants must be over 21 and under 32 years of age at the time of application. Particulars regarding pay, promotion, etc., in the Service can be obtained from the Secretary, Military Department.

STUDIES FROM THE PATHOLOGICAL DEPARTMENT OF THE UNIVERSITY OF EDINBURGH.

CASE VII.

Clinical Observations on a Case of Hæmophilia.

Day Book, 982.
Museum Book, 685.

The patient, who was a watchmaker by trade, was first seen on the 12th February 1909, and remained under observation till his death on the 13th January 1915. He had the usual children's diseases, and was especially ill with scarlet fever.

When six years old he was taken to hospital as he was passing blood by the bowels, and the mother imagines that he may have had an internal hæmorrhage at this time. At eight years of age he fell while on his way to school and hurt his left knee, which became suddenly swollen, the swelling taking about three or four weeks to disappear. When he was ten years old he had a tooth extracted, and bled for two or three days afterwards, when the bleeding seemed to stop spontaneously. From this time onwards till he was seventeen years old he had several attacks of hæmaturia with great pain, and his left knee troubled him from time to time; only once was he free from symptoms for a whole year on end.

When seventeen years old he was again in hospital suffering from a swelling on his leg just below the knee. When twenty-three years old he had a tooth extracted, after which there was no bleeding for an hour or two, then it started and continued to bleed, off and on, for more than a week in spite of treatment. The following year his left knee became suddenly swollen. This disappeared in the course of four days, and he was able to resume work; two days later, however, he was wakened up from sleep by the knee having become swollen again, and he had to remove a bandage which he was wearing in order to relieve the pain. Since then similar attacks of swelling occasionally took place but seemed to vary in intensity, sometimes the swelling being quite soft whilst on other occasions it was noticed to be very tense.

From this time onwards the patient never passed a year without showing active symptoms of the disease. Thus he had joint swellings of his left hip, the right and left knee (especially the latter), ankles (always one at a time), the left elbow, middle and small fingers of his right hand, left wrist and big toe; other symptoms included subcutaneous hæmorrhages, often from slight injuries or none at all, bleedings from cuts on the head and fingers; epistaxis, and bleeding after the extraction of teeth. From time to time he bled from the gums apparently without cause, and also if he brushed his teeth at all vigorously. He suffered from occasional attacks of hæmatemesis and melæna, and on two or three occasions had severe hæmaturia. Once after a round of golf he had a severe hæmorrhage of his right thigh into Scarpa's triangle, extending down into Hunter's canal. At first he felt a little pain and showed a small area of anæsthesia just above the patella; three days later the thigh became extremely painful and kept him from sleep. He could not move the leg on account of the pain. The area of anæsthesia now extended down the front of the thigh as far as the knee; on measuring the right thigh at the level of Scarpa's triangle it was found to be two inches more than the left thigh at the same level. The following day the area of skin anæsthesia had increased to half way down the leg; and by the next day it had reached the toes, and he complained of a hot shooting pain right down the centre of the leg. There was hyperæsthesia of the sole of the foot. In about four days the pain subsided but the anæsthesia remained just the same. The areas affected were those supplied by (1) anterior branch of the external cutaneous nerve; (2) both divisions of the middle cutaneous; (3) both divisions of the internal cutaneous; (4) the long saphenous. The last three were apparently all affected at or close to their origin from the anterior crural nerve.

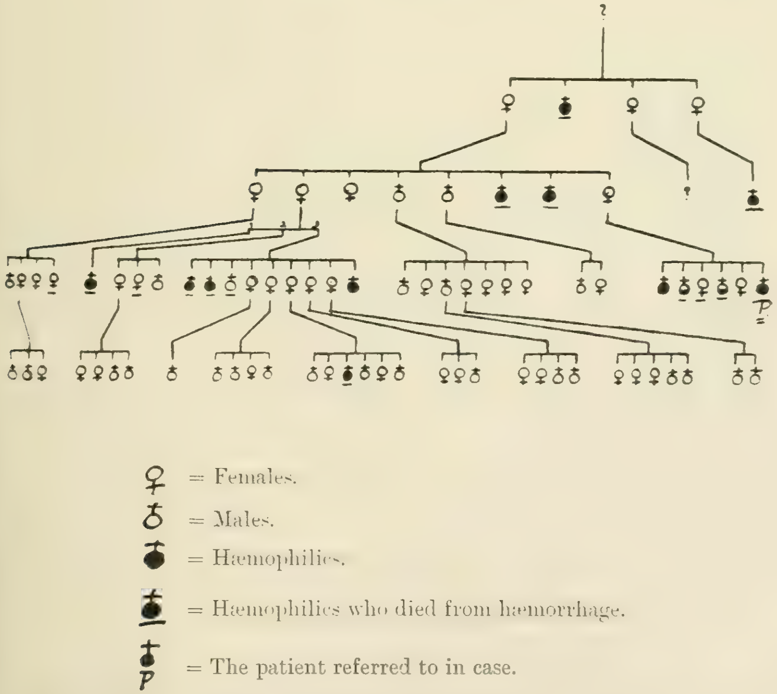
The first named had evidently been caught just after its division into an anterior and posterior branch, the clot not having extended sufficiently round the thigh to catch the latter. The patient after this attack was unable to walk for about three weeks, and still felt a numbness in his right leg for several months before it entirely disappeared.

Apart from the hæmopoietic system there was nothing to note in the other systems. The patient's father showed no signs of hæmophilia, and died of mason's disease; the mother is alive and healthy. One sister is alive and healthy, and one brother is alive, but shows the hæmophilic tendency. Two brothers, said to have been "bleeders," and one sister, died in infancy, cause unknown.

The mother's uncle, two brothers, three nephews, and one grand-nephew died of hæmorrhage, and were hæmophilics; one nephew, a "bleeder," is alive.

On the 31st December 1914 patient fell, with the result that he sustained a slight lacerated wound on the inner aspect of the lip near the middle line. Two superficial catgut sutures were applied, one on either side, in an attempt to control the excessive bleeding, and adrenalin was applied locally. The hæmorrhage ceased for a few hours but began again and kept on constantly oozing. Various local applications were tried; amongst others, blood from a normal patient, but all had practically no effect; finally forceps covered with rubber tubing were applied, but were removed later to obviate necrosis, and the oozing started once more. By the

Family Pedigree.


?
P
= Females.
= Males.
= Hæmophilics.
= Hæmophilics who died from hæmorrhage.
= The patient referred to in case.

Note.—Many members of the last generation, being still in infancy, have so far shown no symptoms of the disease, except in the one case noted.

4th January 1915 the patient had become very anæmic with a soft and rapid pulse; he seemed to be swallowing some of the blood, for he was frequently sick and restless. From this time he bled, off and on, every day till the 8th of January, when the hæmorrhage became very slight, but he was extremely anæmic and restless. On the 13th January he had a pretty severe hæmorrhage from the lip, became restless and exsanguine, mildly delirious and breathless, and died at 1.30 P.M.

The family chart shows the usual characteristics of transmission by females, the males only being affected by the disease. It also shows the characteristic fertility of hæmophilia.

The patient during the intervals of symptoms showed a peculiar recklessness of the dangers to which he knew he was liable, regardless of consequences. He showed no *prodromal symptoms,* such as have been described by some writers, but he usually felt nervous and got flushed after his joints began to swell, and never before. There appeared to be a certain *periodicity of onset of symptoms,* and this patient could usually count on "something happening" about every five weeks or so. In his case no *definite symptoms* were noticed until he was six years old. During his attacks *temperature* rises were the exception, and he never showed any bruising from the application of firm bandages. The arthritic symptoms showed themselves first when he was eight years of age, and the joint swellings as a rule came on very suddenly, and subsided generally as rapidly as they appeared, and like his other hæmorrhagic symptoms, as often as not, came on without apparent cause. It was specially noticed that these joint swellings and other hæmorrhages started during the night on many occasions. In spite of the numerous bleedings in his knees, this patient showed no evidence of crippling as a result. On several occasions morphia had to be given subcutaneously to relieve pain, but at no time did he develop a hæmatoma at the seat of puncture. A leucopenia, especially affecting the polymorphonuclear cells, has been described as a constant feature of this disease. The blood was examined on many occasions in this case, and, as the following table shows, no such leucopenia was found to be present:—

White Blood-Corpuscles.	Differential Count.		
	Polymorphonuclear Cells Percentage.	Lymphocytes Percentage.	Eosinophiles Percentage.
6,878	72	27·5	0·5
14,062	75·5	25	0·5
10,313	73	26	1·5
13,125	74	25	1
8,125	73	25	2
9,400	73	25·5	1·5
7,167	75·5	24	0·5
8,125	70	29	1
9,620	71	28	1
10,200	74	25·5	0·5
11,000	74	25	1
9,000	75	24	1
10,800	78·5	20·5	1
9,687	74	26	0
15,937	79	20	1
11,602	72	27·5	0·5
8,750	69	30	1
10,506	72	26	2
8,432	70	29	1
10,312	72	27	1
8,437	69	30	1
8,125	72·5	27	0·5

Taking the normal *viscosity of the blood* to be between 4·8 and 5·6, that of water at the body temperature, the viscosity of the blood in this case was found to vary between 5·86 and 6·25, whilst that of the plasma was 2·1 and of the serum 1·9. The coagulation time of the blood was frequently examined during the period this patient was under observation, the method used being that of Addis,[1] whose coagulometer, briefly described, consists of a cylindrical vessel placed in the centre of a similar but considerably larger vessel, both being filled with water at a temperature of 20° C., and capillary tubes six inches long and 1·5 mm. in diameter being inserted into metal receptacles made to exactly fit them and introduced into the inner vessel. These capillary tubes were filled, under certain precautions, with the blood to be examined, sealing up one end and at intervals of a minute taking the tubes out and breaking off a small part until a fibrin thread was seen on slowly drawing the fractured ends apart. The coagulation time is that elapsing between the filling of the tube and the first appearance of fibrin. It was found that in order to obtain accurate results the temperature of the finger from which the blood was taken should not be too cold, and when this was the case the patient was made to warm his hand by bathing it in warm water.

Six estimations were made each time the test was applied, making a separate and fresh puncture for each result, and the average of these was taken to be the coagulation time of the patient's blood. In doing so, it was found that, as a rule, the times obtained varied often considerably, some sets showing more divergent results than others. The control estimations, on the other hand, seldom varied more than about one minute on each occasion on which they were taken; those of the "non-bleeder" relations of the patient likewise showed similarly constant results, so that it is evident that these variations in the coagulation time of this hæmophilic patient's blood must be due to other than mere experimental error.

Another interesting fact noted in this case was that the first specimen of blood from a puncture took longer to coagulate than the successive specimens from the same wound. The following three examples out of numerous estimations show this:—

1.

Start.		Finish.		Coagulation Time.
Hrs.	Mins.	Hrs.	Mins.	
3	39	4	23	=44 minutes
Blood taken from the same puncture 10 minutes later—				
3	49	4	4	=15 ,,
Blood taken from the same puncture 15 minutes later—				
3	54	4	1	= 7 ,,

2.

Start.		Finish.		Coagulation Time.
Hrs.	Mins.	Hrs.	Mins.	
3	21	4	13	=52 minutes
Blood taken from the same puncture 5 minutes later—				
3	26	3	56	=30 ,,
Blood taken from the same puncture 10 minutes later—				
3	31	3	43	=12 ,,
Blood taken from the same puncture 15 minutes later had to be squeezed out from the puncture wound—				
3	36	3	45	= 9 ,,

3.

Start.		Finish.		Coagulation Time.
Hrs.	Mins.	Hrs.	Mins.	
2	8	3	7	=59 minutes
Blood taken from the same puncture 8 minutes later—				
2	16	2	36	=20 ,,
Blood taken from the same puncture 15 minutes later—				
2	23	2	33	=10 ,,
Blood taken from the same puncture 18 minutes later had to be squeezed out from the puncture wound—				
2	26	2	34	= 8 ,,

These results confirm clinically the views expressed by Addis after experiments with hæmophilic blood *in vitro*. Presumably the first specimen of blood was ejected before it had time enough to come long into contact with the thrombokinase set free in the surrounding tissues, whilst the later specimens, being subjected longer to its influence, produce more thrombin, with consequently more rapid coagulation. But the formation of thrombin is never instantaneous however much thrombokinase be present, and it is only when preformed thrombin is added that it coagulates quickly. Such preformed thrombin is found to be present in these wounds, being derived from the blood which has previously coagulated, and this fact accounts for the rapid coagulation of the last specimen of blood.

This patient was treated with normal horse serum, and its effect on the coagulation time of the blood was frequently noted. Weil[2] states that he used serum from the rabbit, horse, and man with equal effect, and that the normal serum contains the thrombozymic ferments which he says are wanting in hæmophilic blood. It may be given by the mouth in doses of 20 c.c. to 30 c.c., or by intravenous injection in 10 c.c. to 20 c.c. doses. The serum does not take effect till forty-eight hours after administration, and its influence does not last for a very prolonged period—a matter of a few weeks. It becomes less potent the longer it is kept, and should not be used older than fifteen days if a full therapeutic action is desired. Nolf and Herry, on the other hand, state that serum which has been kept is just as efficacious as fresh serum, although no thrombin is contained in it. Weil affirms that it acts differently in the two forms of the disease, which he describes: thus in the "sporadic" cases, serum given intravenously in doses of 15 c.c. to 20 c.c. renders the coagulation of the blood normal both in time and form, but that the effect is transient in time, though not in form. In the "family" form, intravenous injection of serum modifies the coagulation of the blood considerably, but never brings it down to normal. It is only a suitable therapeutic agent against symptoms, and does not reach to the cause of the condition. He admits, however, that normal serum is not always effective in this form of the disease. The serum used in the present case was procured direct from a reliable firm, and was administered in various ways—locally, intravenously, and by the mouth. The serum appeared to have a general constitutional effect, for, as the patient expressed it himself, he always felt a "sense of well-being" while he was having it. He believed in it thoroughly and always begged to be given it, a fact which partly accounts for him having been given it so frequently. In this sense he derived benefit from the serum, but the results shown by the accompanying effect on the coagulation time of the blood were found to be uncertain, slight, and transient, never bringing about a sudden fall, and as often as not, having no effect whatever.

Several estimations were made to test the result of normal serum on this patient's blood *in vitro*, and it was found that the serum had no effect in diminishing the coagulation time, but tended rather to increase it. Two sets of estimations were made, one set done with tubes through which normal serum had been run, and another set through which no serum had been passed.

First Series.—Having serum previously passed through the coagulation tubes—

	Hrs.	Mins.	Hrs.	Mins.	Mins.	
No. 1 . .	9	2	9	53	51	51 mins.
No. 2 . .	9	4	9	52	48	
No. 3 . .	9	6	10	0	54	
No. 4 . .	9	8	10	0	52	
No. 5 . .	9	9	9	55	46	
No. 6 . .	9	10	10	5	55	

Average coagulation time being 51 minutes.

Second Series.—Without serum having been previously passed through the coagulation tube—

	Hrs.	Mins.	Hrs.	Mins.	Mins.	
No. 1 . .	9	59	10	30	31	32 mins.
No. 2 . .	10	1	10	31	30	
No. 3 . .	10	3	10	35	32	
No. 4 . .	10	4	10	40	36	
No. 5 . .	10	8	10	41	33	
No. 6 . .	10	12	10	45	33	

Average coagulation time being 32 minutes.

A similar test was later attempted clinically, the patient not having had any serum for a prolonged time. The coagulation time was taken first, before any serum had been given; 10 c.c. of normal serum was then injected into the median basilic vein and the coagulation time later re-estimated at intervals of several hours—

	Hrs.	Mins.	Hrs.	Mins.	Mins.	
No. 1 . .	3	36	4	42	66	61 mins.
No. 2 . .	3	38	4	43	65	
No. 3 . .	3	42	4	41	59	
No. 4 . .	3	44	4	45	61	
No. 5 . .	3	47	4	43	56	
Control . .	3	50	3	59		

Ten c.c. of normal serum were injected intravenously, and six hours later the coagulation time was:—

	Hrs.	Mins.	Hrs.	Mins.	Mins.	
No. 1 . .	9	30	10	39	69	70 mins.
No. 2 . .	9	32	10	45	73	
No. 3 . .	9	34	10	44	70	
No. 4 . .	9	37	10	41	64	
No. 5 . .	9	40	10	55	75	
Control . .	9	45	9	55	10	

Eighteen and a half hours later—

	Hrs.	Mins.	Hrs.	Mins.	Mins.	
No. 1 . .	10	0	11	7	67	68 mins.
No. 2 . .	10	2	11	14	72	
No. 3 . .	10	4	11	3	59	
No. 4 . .	10	6	11	15	69	
No. 5 . .	10	10	11	25	75	
Control . .	10	15	11	25	10	

Forty-two hours later—

	Hrs.	Mins.	Hrs.	Mins.	Mins.	
No. 1 . .	9	30	10	32	62	65 mins.
No. 2 . .	9	32	10	26	54	
No. 3 . .	9	35	10	43	68	
No. 4 . .	9	38	10	56	78	
No. 5 . .	9	41	10	46	65	
Control . .	9	44	9	53	9	

Fifty-four hours later—

	Hrs.	Mins.	Hrs.	Mins.	Mins.	
No. 1 . .	9	32	10	39	67	60 mins.
No. 2 . .	9	36	10	24	48	
No. 3 . .	9	38	10	32	54	
No. 4 . .	9	40	10	50	70	
No. 5 . .	9	41	10	43	62	
Control . .	9	43	9	53	10	

It will be seen, therefore, from both these series of tests, that the serum given intravenously was practically inert *in vivo* as well as *in vitro*. Never did the administration of normal serum bring about a sudden fall in the blood coagulation time, and frequently reductions of coagulation time were noticed during periods when serum was not being given. Locally, serum was found to be practically of no value. Given by the mouth in 10 c.c. doses daily the coagulation time of his blood gradually reduced from 70 minutes to 13 minutes, but when stopped it rose again to 52 minutes. On starting the serum once more, the coagulation time was brought gradually down to an average of 25 minutes, never any further. During a prolonged time when the serum was stopped, the delay in coagulation again showed itself, but, on resuming the treatment, the coagulation again showed signs of becoming hastened. Each time he was taking serum, the effect was of a very gradual nature, and out of all proportion to the amount of serum taken. He never showed the least symptoms of serum excess—a curious fact in view of the amount of serum he had taken from time to time. The administration of serum seemed to have no therapeutic effect upon the symptoms of the disease, for joint troubles and other hæmorrhages occurred to the same extent during treatment as when serum was not being given.

RÉSUMÉ OF SYMPTOMS AND COAGULATION RESULTS.

Date.	Symptoms.		Coagulation Time. M'Gowan's Method.	Control.
1909				
5th Feb.	Left knee swollen.			
17th Feb.	Right knee slightly swollen.			
25th Feb.	...	10 c.c. normal serum intravenously.	42 mins.	16 mins.
26th Feb.	...	...	32 mins.	10 mins.
14th March	...	10 c.c. normal serum daily by mouth.	70 mins.	20 mins.
17th March	Whitlow of finger (did not bleed excessively after incision).			
18th March	...	...	40 mins.	16 mins.
20th March	Right knee swollen (result of a long walk); lasted for three days.			
1st April	...	Stopped normal serum.		
3rd April	...	...	58 mins.	14 mins.
14th April	Soft swelling of left knee, lasting two days.			

Date.	Symptoms.		Coagulation Time. M'Gowan's Method.	Control.
22nd May .	...	Started normal serum; 10 c.c. by mouth daily.		
23rd May .	...	...	40 mins.	9 mins.
30th May .	...	...	44 mins.	10 mins.
13th June .	...	...	28 mins.	11 mins.
27th June .	...	...	35 mins.	15 mins.
18th July .	...	...	31 mins.	12 mins
25th July .	Bruise of left elbow, no cause; disappeared in seven days.			
1st Aug. .	...	...	24 mins.	12 mins.
8th Aug. .	...	...	19 mins.	6 mins.
28th Aug. .	...	Stopped normal serum.		
29th Aug. .	...	...	13 mins.	9 mins.
13th Sept. .	Swelling of, with discoloration over, the left elbow-joint and right big toe; practically disappeared in three days.			
21st Sept. .	Swelling of right knee-joint, lasted three weeks.			
1st Nov. .	Swelling of left knee-joint; pain for five days; disappeared in three weeks.			
14th Nov. .	...	Started normal serum, 10 c.c. daily by mouth.	52 mins.	10 mins.
21st Nov. .	...	...	41 mins.	8 mins.
28th Nov. .	...	...	32 mins.	12 mins.
			Addis' Method.	
12th Dec. .	Left hip slightly swollen and painful on pressure.	Normal serum, 5 c.c. by mouth daily.	27 mins.	10 mins.
19th Dec. .	...	...	33 mins.	9 mins.
21st Dec. .	Soft swelling in left knee-joint; in bed for three days; disappeared in seven days.			

Date.	Symptoms.		Coagulation Time. Addis' Method.	Control.
26th Dec. .	...	...	25 mins.	10 mins.
27th Dec. .	...	Normal serum, 10 c.c. by mouth daily.		
1910.				
9th Jan. .	...	...	26 mins.	9 mins.
23rd Jan. .	...	...	25 mins.	10 mins.
6th Feb. .	...	...	28 mins.	8 mins.
10th Feb. .	Left knee a little swollen; disappeared by next day.			
13th Feb. .	Neck stiff and swollen, left elbow a little swollen.	Stopped normal serum.	29 mins.	7 mins.
20th Feb. .	...	Normal serum, 10 c.c. intravenously.	36 mins.	10 mins.
27th Feb. .	...	...	28 mins.	10 mins.
6th March .	Epistaxis severe in forenoon, stopped in evening, slightly during the night again.	...	32 mins.	12 mins.
13th March	...	...	37 mins.	8 mins.
20th March	...	Normal serum, 10 c.c. intravenously.	32 mins.	10 mins.
27th March	...	...	31 mins.	10 mins.
28th March	Wrist swollen and painful; disappeared in four days.			
31st March	Hæmaturia; disappeared in two days.			
3rd April .	...	...	31 mins.	10 mins.
18th April	...	...	48 mins.	9 mins.
20th April	Left elbow swollen and painful, the result of a knock; disappeared in two days.	...	37 mins.	10 mins.
25th April	Left knee swollen and painful; in bed two days, off work for three days.			
1st May .	...	...	39 mins.	8 mins.
8th May .	Left wrist slightly swollen and painful; upper left molar stump bleeding slightly for one week.	...	32 mins.	10 mins.

Date.	Symptoms.		Coagulation Time. Addis' Method.	Control.
15th May .	Slight hæmatemesis with melæna.	...	37 mins.	9 mins.
22nd May .	...	...	61 mins.	10 mins.
29th May .	...	...	52 mins.	10 mins.
31st May .	Left ankle bruised and sore ; left elbow stiff and swollen ; only apparent cause was trying to ride a bicycle; disappeared in one week.			
5th June .	...	...	61 mins.	9 mins.
12th June .	...	...	60 mins.	9 mins.
19th June .	...	...	61 mins.	9 mins.
26th June .	...	...	58 mins.	9 mins.
10th July .	...	...	66 mins.	9 mins.
19th July .	...	...	53 mins.	9 mins.
24th July .	...	...	54 mins.	11 mins.
30th July .	Swelling on outer side of left knee, the result of a twist.			
1st Aug. .	...	...	40 mins.	10 mins.
7th Aug. .	...	...	56 mins.	9 mins.
14th Aug. .	...	...	56 mins.	10 mins.
18th Aug. .	Epistaxis for one day.	...	42 mins.	9 mins.
23rd Aug. .	...	...	57 mins.	9 mins.
2nd Sept. .	Swelling over Scarpa's triangle in the right thigh, spreading down the line of the femoral artery ; disappeared in one month, though resultant anasthesia lasted for several months. A severe hæmorrhage.			
4th Sept. .	...	...	52 mins.	11 mins.
2nd Oct. .	...	Normal serum, 10 c.c. intravenously.	61 mins.	9 mins.
3rd Oct. .	...	...	68 mins.	10 mins.
4th Oct. .	Left knee a little swollen and painful.	...	65 mins.	9 mins.
9th Oct. .	...	...	50 mins.	10 mins.
1911.				
23rd Jan. .	Right knee swollen and painful, the result of a twist; disappeared in about one month.			

Date.	Symptoms.		Coagulation Time. Addis' Method.	Control.
2nd Feb. .	...	Normal serum, 10 c.c. daily.		
15th Feb. .	Hæmorrhage into left elbow joint; no apparent cause; lasted one week.	...	40 mins.	10 mins.
28th Feb. .	...	Normal serum stopped.		
19th April.	...	Normal serum, 10 c.c. daily by mouth.	57 mins.	10 mins.
20th April.	...	...	61 mins.	9 mins.
21st April.	...	...	51 mins.	9 mins.
22nd April	...	...	48 mins.	10 mins.
23rd April.	...	...	49 mins.	12 mins.
26th April.	...	Normal serum stopped.	47 mins.	10 mins.
5th May .	Hæmaturia, lasting four days.	...	40 mins.	11 mins.
7th May .	...	...	45 mins.	10 mins.
12th June.	...	...	55 mins.	10 mins.
6th July .	Swelling of left knee; lasted two weeks.			
14th Aug. .	Subcutaneous bruising and swelling of right shoulder, the result of a knock; lasted six days.	...	32 mins.	9 mins.
15th Aug. .	...	...	36 mins.	9 mins.
20th Aug. .	...	...	40 mins.	10 mins.
1912.				
4th March.	Swelling of left elbow, no apparent cause; lasted two days.			
8th March.	Swelling of left ankle, result of a twist; lasted one week.			
28th March	Stump of back left lower molar bleeding off and on for a week.			
5th June .	...	...	60 mins.	11 mins.
12th June.	...	...	55 mins.	10 mins.
19th June.	...	...	70 mins.	9 mins.
5th Aug. .	Swelling and pain of right hip; no apparent cause; lasted ten days.	...	37 mins.	10 mins.
6th Aug. .	...	...	40 mins.	9 mins.

Date.	Symptoms.		Coagulation Time. Addis' Method.	Control.
7th Aug. .	...	...	42 mins.	9 mins.
5th Nov. .	Bleeding from gums, two days.			
1913.				
2nd March	Swelling of left knee-joint, lasted for one week; "leg went under him."			
31st March	Swelling of left ankle, result of a kick; lasted five days.			
23rd Sept..	Swelling of left knee-joint; lasted for four days.			
31st Oct. .	Slight swelling of left knee-joint; lasted for several days.	...	42 mins.	10 mins.
1st Nov. .	...	...	38 mins.	10 mins.
4th Nov. .	...	...	45 mins.	9 mins.
16th Nov. .	Gums bleeding for three days.	...	40 mins.	10 mins.
17th Nov..	Swelling of left elbow; no apparent cause; lasted six days.			
1914.				
4th Feb. .	...	...	65 mins.	11 mins.
31st March	Hæmaturia, lasting for one day severely and slightly for three days.	...	43 mins.	10 mins.
1st April .	Epistaxis for one day.	...	45 mins.	10 mins.
6th April .	...	...	70 mins.	9 mins.
13th Oct. .	Swelling and pain of left knee, the result of a fall, lasting two weeks.			
31st Dec. .	Cut on lips, bled severely and ultimately caused death of patient from loss of blood and resultant profound anæmia.			
1915.				
1st Jan. .	...	...	13 mins.	10 mins.
13th Jan. .	Death of patient.			

REPORT OF POST-MORTEM EXAMINATION.

The body is that of a slightly-built young man.

Great pallor of skin and no post-mortem lividity.

A small amount of clot is present around upper lip, which is cut.

No excess of fluid in serous sacs.

Blood in vena cava is quite fluid.

Glands.—Glands in mesentery not enlarged, pale. Glands along aorta not enlarged, faint pink in colour.

Brain.—Weight, 1530 grms. Nothing to note beyond slight œdema of substance and general pallor.

Knee-Joints.—Both show brown pigmentation in synovial membrane and in joint itself; in left joint there is a little brown fluid. There is some erosion of the cartilage.

In *subcutaneous tissues* around right elbow is some fluid blood, dark red in colour.

There is general pallor of mucous membranes.

Thyroid is normal to naked eye. Pituitary also normal.

Heart.—Small. Weight, 270 grms. *Right side*, relatively dilated. Tricuspid and mitral valves healthy.

No post-mortem clot in heart, and only a small piece of pale agonal thrombus.

Aorta.—Healthy.

Lungs.—*Right*, 290 grms. *Left*, 390 grms. Both small and light from atrophous emphysema.

On Section.—Œdema of left lower lobe. *Bronchi* pale.

Spleen.—Weight, 115 grms. Small and soft. *On section*, light brown in colour. No iron reaction.

Liver.—Weight, 1270 grms. Small and soft. Light brown in colour. No iron reaction.

Stomach and Intestines.—Nothing to note. No increase of lymphoid tissue.

Pancreas.—Of normal appearance.

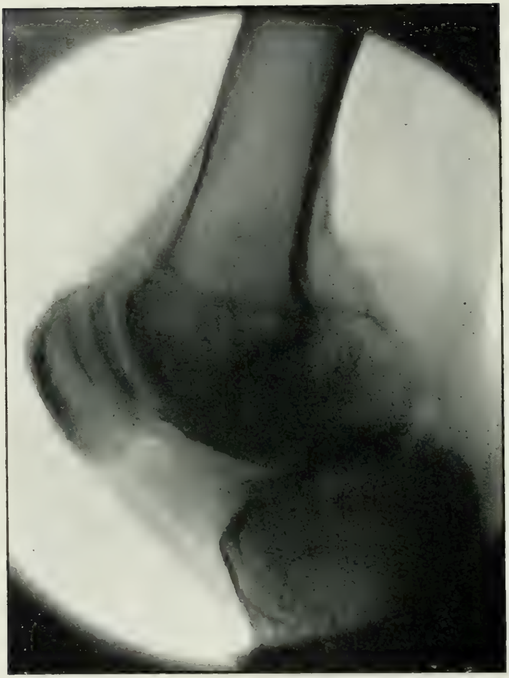
Suprarenals.—No naked-eye change.

Kidneys.—Of normal size. *Right*, 100 grms. *Left*, 100 grms. Capsule strips off easily. Surface smooth. *On section*, general pallor. No iron reaction.

Bladder.—Urine clear. Pallor of mucosa.

MICROSCOPICAL FINDINGS.

Lymph Glands.—The lymph glands show in the sinuses a considerable amount of coagulum and débris. There is some proliferation of endothelial cells. The intimal cells of the blood-capillaries are thickened. In the arteries there are large numbers of ante-mortem clots showing a very well-defined delicate fibrous network



[Photo by Dr. M'Kendrick.

FIG. 1.—Left Knee-joint. Shows old effusion into joint, organised. Organisation of effused blood and serum, hence irregularity in outline.

entangling white corpuscles and some red corpuscles. The coagulum is contracted so that it does not occupy the whole lumen of the vessel in which it is present. It stains very faintly by the Weigert fibrin method. In one gland, which was the site of hæmorrhage, there were large numbers of red corpuscles in the sinuses, and the endothelial cells were actively proliferating and in a state of active phagocytosis. In a bronchial gland there was a considerable amount of carbon pigment, with accompanying fibrosis.

Heart.—The sub-epicardial vessels contain a slight amount of granular fibrinous coagulum; in the muscle there is less evidence of coagulation, and here the lumen is occupied by blood-corpuscles. In the perivascular tissue, especially in the epicardium, there are well-defined collections of round cells. Some of these are enlarged endothelial cells from the capillary walls, others are fibroblasts, and with these are numerous polymorphs. While these cells are present in considerable numbers, there is no indication of the focal collections of acute inflammation.

The muscle fibres are fairly normal in appearance; in a few the substance shows some granularity. The endothelial cells covering the epicardium are markedly enlarged.

Aorta.—In the inner third of the media there is a zone in which the muscle fibres are swollen up as if by œdema. There is no change in the intima or the adventitia. A similar change is seen in the media of the splenic artery; here there is also a slight amount of fibrous thickening of the intima.

Sympathetic ganglion shows no definite pathological change.

Bone-Marrow.—Marked leucoblastic and erythroblastic reaction. The coarsely granular eosinophile myelocytes were deficient.

Lung.—The endothelium of the visceral pleura is slightly swollen, and forms a rather prominent layer of cells on the surface of the lung. The capillaries of the inner wall are generally dilated, but there is little desquamation of the alveolar cells. There are patches of œdema, and in the coagulum which has formed from the œdematous fluid there are numbers of red corpuscles. There is little or no sign of ante-mortem coagula in the arteries or veins. In the fibrous tissue of the pleura are numbers of endothelial cells loaded with blood pigment.

Synovial Membrane.—The endothelial cells lining the surface are very much enlarged, and are infiltrated with a dense brownish-black pigment in the form of granules. At some points the endothelial cells have proliferated, but they are all loaded with pigment.

There is no definite increase of fibrous tissue in the membrane, nor is there any leucocytic reaction or œdema. There is a large amount of pigment, however, present in the connective tissue cells and the lymph spaces. There is a very slight amount of ante-mortem clot in the vessels. The vessel wall shows some thickening of the middle coat.

Stomach and Intestine.—There is no deposit of pigment in the mucous membrane.

The vessels in the submucous coat show a fair amount of fibrinous coagulum in the lumen. The endothelium of the serous coat is normal and free from pigment.

Spleen.—The Malpighian bodies are of very small dimensions, and the arterioles supplying them show marked hyaline thickening of their walls.

The blood in the venous sinuses does not show a definite coagulum, and among the red corpuscles which occupy the lumen are a number of white cells loaded with pigment granules.

The arteries and veins generally are entirely free from fibrinous coagula; at most, there are here and there a few granules of precipitated fibrin. In some areas there are small hæmorrhages. In the area of hæmorrhage there is a large amount of brown granular blood pigment, partly free and partly contained in phagocytic cells. Generally throughout the pulp there are large numbers of brown pigment granules, some of them enclosed in endothelial cells. The granules gave no reaction for free iron.

Kidney.—The kidney vessels are slightly congested. The lumen is occupied with red corpuscles, but there is very little fibrin to be made out; here and there there is a small collection of fibrin granules, but there is no definite meshwork of fibrin threads.

The epithelium of the convoluted tubules is unusually granular. There are large numbers of hyaline casts in the Henley loops.

Liver.—Both in the portal veins and in the central veins of the acini there are coagula of fine granules of fibrin. In the epithelial cells there is a deposit of pigment, especially in those of the central zone. In this zone there is a moderate degree of cell atrophy, and a considerable number of fat globules are to be seen in the cells. In the capillaries of the central zone there are numerous polymorph leucocytes.

The granules in the liver cells gave no reaction for free iron.

Pancreas.—The gland acini and islets were both normal. The protoplasm of the gland cells was packed to an unusual degree with eosinophile granules.

Thyroid.—The alveoli of the thyroid gland are widely dilated by their colloid contents, otherwise there is nothing to note.

Suprarenal.—The cortical cells contained a considerable amount of myelin; there was a fair amount of chromaffin granules in the deeper zone, and there was no definite change in the medullary cells.

Round the gland the adipose tissue showed patches of primitive fat cells.

There were no coagula in the blood-vessels.

Pituitary.—There was nothing to note in the glandular tissue. In the sinuses between the glandular and nervous portions there were a very few small fibrinous coagula.

Medulla.—The nerve-cells of the medullary nuclei were normal in appearance, and there was no cellular infiltration. There was some fibrinous coagula in the meningeal vessels.

Cerebrum.—A section from the area of the precentral convolution showed normal nerve-cells. The vessels in the meninges showed a few fibrinous coagula.

Skin.—The area sectioned included the site of old and recent hæmorrhages. The blood had diffused through the connective tissue septa, and to a less extent amongst the fat cells. In the stroma there were numerous cells containing granules of brown pigment. There were no signs of the formation of fibrin threads in the extravasated blood, and there was very little evidence of coagulation in the blood contained in the vessels. There was very little general cellular reaction round the extravasated blood.

In conclusion, we should like to express our thanks to Professor Gulland and Mr. Alexander Miles for permission to investigate the case while it was in their charge, and to Professor Lorrain Smith and Dr. J. W. Dawson for much valuable help during the preparation of this paper.

T. Y. Finlay.
A. Murray Drennan.

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A CASE OF SYMMETRICAL "PRESSURE" FIBROMATA.

By DAVID M. GREIG, C.M., F.R.C.S.(Edin.),
Senior Surgeon, Dundee Royal Infirmary.

No. 6700, Private W. R., aged 41, 2nd Gordon Highlanders, came under my observation on 3rd February complaining of swellings over each trochanter, which he stated he had first observed in December 1914. His 23 years' service in the army included the Tirah Campaign, the Chitral Expedition, the South African War, and the present campaign. He left the army after the South African War and worked as a labourer until he rejoined as a volunteer on the outbreak of hostilities in August. He is married, has five healthy children, the youngest aged 9 months; none dead. He was in hospital 31 years ago with enteric fever, and had a rifle bullet through the left thigh in the South African War. He has had no other illness or injury, and has never suffered from venereal disease. In October 1914 he went with his regiment to France.

He is a strong, well-built but phlegmatic man, rather older in appearance than his years, and alleges that he is of strictly sober habits. He became aware of the presence of the lateral tumours about December 1914, his attention being attracted to them by his inability to lie on either side. He had also some discomfort on sitting, and the pressure of his equipment on the tumours over the trochanters was the immediate cause of his being temporarily invalided.

Immediately behind each trochanter major was a conical protuberance, the right being rather smaller than the left and about the size of a walnut. The right tumour was movable, but its apex was attached to the deeper layers of the skin. It appeared to move with the deep fascia, and it was certainly free from the bone. On the left the tumour was more elongated, slightly lobulated, but, like that on the right, densely hard. At its anterior margin it slightly overlapped the trochanter. It was quite free from the skin, and was well defined, but appeared to be attached to the deep fascia. Posteriorly inspection of the gluteal region showed the left fold of the nates to be slightly more projecting and dependent than the right. Examination of these parts disclosed a symmetrical, hard, well-defined tumour with all the characteristics of those at the trochanters, and apparently in corresponding

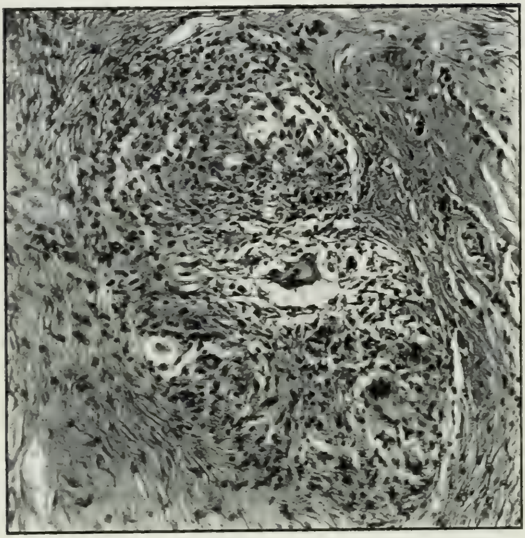


Fig. 1.—Section of Tumour showing Concentric Arrangement of Lymphoid Cells round Central Giant Cell. (× 135.)

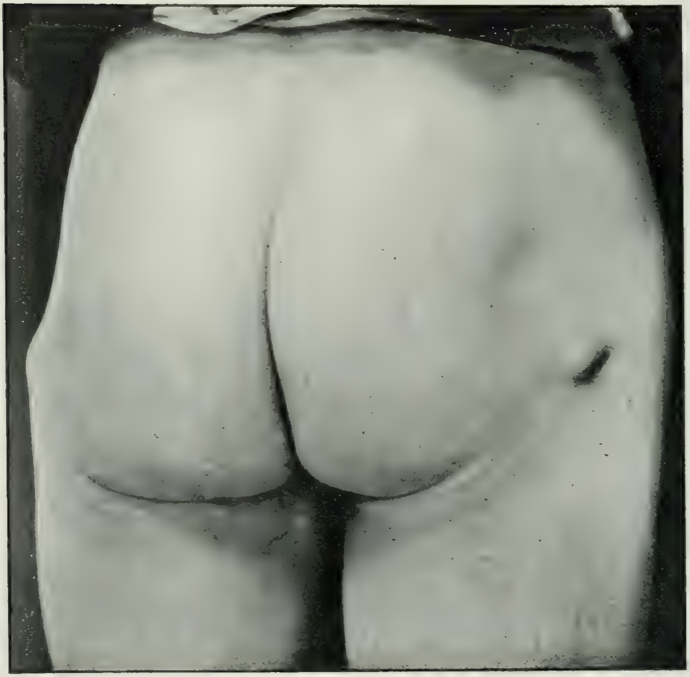


Fig. 2.—Symmetrical Fibromata at Trochanters and Ischial Tuberosities.

relation to the ischial tuberosities. Neither was attached to the skin, and the left was somewhat larger than the right. The appearances produced by the presence of these tumours is well shown in the photograph (Fig. 2). Both lateral tumours were located over the trochanters when the position was one of stooping, but when the patient assumed the upright posture each lay one inch posterior to its trochanter.

The site of the tumours, their extreme hardness, and the circumstances under which they were produced (though one scarcely expects a Gordon Highlander to develop simian-like callosities through lying or sitting on the ground) suggested at once the existence of fibromata or perhaps adventitious bursæ, which had become consolidated into fibrous masses. The patient was apparently ignorant of the existence of the tumours at the ischial tuberosities.

Under a general anæsthetic the tumour at each trochanter was dissected out, and in each case was found to extend to the deep fascia. The pathologist's report seemed to confirm the diagnosis of fibromata, but on more particular examination the curious fact evolved that in the midst of the dense fibromatous matrix, tubercles with the regular arrangement of lymphoid cells round giant cells were found embedded (Fig. 1).

Fibromata are exceedingly uncommon tumours, while cases of adventitious bursæ quite frequently come under observation. It must be rare for an adventitious bursæ not to make its presence felt before it has become consolidated into a fibrous mass. In the solid golf-ball-like tumour which sometimes succeeds chronic prepatellar bursitis it is quite unknown that the growth can be of short duration, and that the patient cannot remember when the swelling was softer. Bursæ and adventitious bursæ become solid only after repeated inflammation, and this process is accompanied by pain which makes its presence felt. Naturally, one discounted the alleged rapidity of growth in the above case, and presumed that the man's observation had been at fault, and perhaps by doing so one did not eliminate the etiological feature of a chronic bursitis.

On the other hand, symmetrical fibromata was certainly a possible condition, though here, too, the alleged rapidity of growth was improbable. From the attachments of the left trochanteric tumour it appeared that the fibromata had originated in connection with the deep fascia, and were of the nature of the so-called desmoid tumours. On the right the tumour had extended so as to become incorporated at one small point with the skin, while that on the left had not reached the integument.

That the tumours originated *de novo* and were the results of irritation can scarcely be doubted. Their site, their symmetry, the subjacent and comparatively unprotected bony prominences, all seemed to limit the consideration to whether they were desmoid or bursal in origin, and one was quite unprepared to find that these tumours had any superadded tubercular element. It seems incredible that tubercle should have been the primary cause of all four neoplasms. The irritation of the parts by lying and sitting had brought about, in a man possessing some unknown idiosyncrasy, a proliferative growth in connection with the fascial structures, but, as the photomicrographs show, the tubercular arrangement is typical, though the presence of bacilli in the tissues was not demonstrated.

The man made an excellent recovery from the slight operation, and has long since rejoined his depôt.

CLINICAL RECORDS.

SOME DIFFICULT CASES.

By ALEXANDER GOODALL, M.D., F.R.C.P., Assistant Physician to the Royal Infirmary; Lecturer on Clinical Medicine in the University of Edinburgh.

In these times a much larger share of responsibility than usual falls to the lot of an assistant physician. It is perhaps for this reason that a considerable number of very puzzling cases has come under my notice. In some of these, in spite of help kindly given by surgical and specialist colleagues, the diagnosis remained uncertain until that last specialist, the pathologist, had made his investigation.

Case I.—*Mitral Stenosis and Multiple Emboli Simulating Cerebellar Tumour.*—The foreman of a labour gang at Rosyth, aged 43, was admitted on 1st April 1915. He complained of weakness in the left side and a curious barking respiratory sound.

About a fortnight before admission patient became troubled with a cough which sometimes embarrassed his breathing. A few days later he had an attack of vomiting which lasted for two days. Three days later partial ptosis of the left eye developed. This was followed by a herpetic eruption below the eye. He next noticed impaired sensibility on the left side of the face, distinct weakness in the left arm, and slight weakness in the left leg.

Family history and previous illnesses of no importance. Syphilis was denied, and a Wassermann test of the blood was negative.

On examination patient looked well nourished. The temperature was normal.

Circulatory System.—There were no subjective phenomena. The heart was slightly enlarged. At the mitral area there was a presystolic thrill and a harsh presystolic murmur with a booming first sound. The pulse was irregular, due to a fair number of extra-systoles occurring at varying intervals. The arteries were considerably thickened.

Respiratory System. — Breathing was regular, 20 per minute. Respiration was accompanied by a peculiar noise. It occurred with expiration and seemed to have the spasmodic character of hiccough, but much more closely resembled a bark than anything else. Sometimes it accompanied every expiration; occasionally it was absent, and rarely the "bark" was doubled.

The nose, pharynx, and lungs seemed healthy. Examination of the larynx was at first impossible, though an interesting condition was found later. Radiographic examination of the chest revealed nothing but the enlarged heart.

The urine showed no abnormality.

Nervous System.—Patient complained of tingling in the left side of the face and left hand. Sensibility to light touch was lost on the left side of the face. The left pupil was small, but reacted to light and accommodation. There was slight constant lateral nystagmus. There was slight weakness of the left hand and left leg.

The organic reflexes were unimpaired. Babinski's sign was absent.

The knee- and ankle-jerks on the left side were increased, and there was slight left ankle clonus.

Progress.—In a few days the patient's "bark" disappeared except at very long intervals—about three a day. Some painful inflamed patches appeared on the face.

He was now sent to the Ear and Throat Department, and Dr. J. S. Fraser reported as follows:—

"I was much interested in the hæmorrhagic eruption, which seems to have affected the anterior temporal region, the lower eyelid, the nasal vestibule, and the left external auditory meatus. There is no 'running ear' in the ordinary sense, *i.e.*, no perforation of the membrane. The case is a remarkable one, because there is paralysis of the left vocal cord, which is in the middle line and quite immovable. The condition is one of abductor paralysis and not of complete recurrent paralysis. There is no deafness of the left ear, and no facial paralysis and no paresis of the soft palate. It is said that vocal cord paralysis is not met with in a cerebral lesion unless it is at the base."

Dr. Sym now kindly saw the patient and reported: "Nothing abnormal in fundus. V = 6/18 R.E., 6/9 L.E. No scotoma. Slight lateral nystagmus, not increasing in any particular direction. (?) Cerebellar."

On the 6th of June patient was allowed up. On attempting to walk he staggered to the right side and fell. Subsequent attempts were followed by the same result.

Another visit to Dr. Fraser was followed by a report to the effect that the laryngeal condition was the same as before, and that there was no lesion of the semicircular canals or of the vestibular nerve, and that the causal condition was probably at the base of the brain.

Patient now greatly improved, and the staggering became much less.

On 15th June he suddenly deveveloped great pain in the *right* foot and leg. This was accompanied by complete anæsthesia of the foot and inner side of the leg as far up as the knee.

The pain gradually subsided and sensibility returned.

On 25th June patient was sleeping quietly at 1 A.M. At 6.30 he spoke to the nurse. A few minutes later she noticed that he was deeply cyanosed, and death occurred almost immediately.

A post-mortem examination was made by Dr. Drennan. The mitral orifice was found to be markedly stenosed. The cusps were thickened and rigid. Around the opening was a ring of little projecting calcified nodules.

The kidneys showed some old and recent infarcts. The brain was soft and very œdematous. In the right middle cerebral artery in the fissure of Sylvius there was a recent thrombus. In the anterior part of the right external and internal capsules there was a recent area of slight softening. There was no gross evidence of previous emboli or softenings.

Comment is almost as difficult as was the diagnosis. Out of the multiplicity of symptoms, the history of vomiting, the nystagmus and other eye symptoms, the "bark," and the vocal cord paralysis, the transient hemiplegia and the staggering seemed to indicate a cerebral condition, and cerebellar tumour was provisionally diagnosed. In spite of the marked mitral stenosis there were no cardiac symptoms beyond the extra-systoles. The true explanation of the case seems to be a succession of small and multiple emboli.

CASE II.—*Suppurative Tonsillitis causing* (1) *Chronic Ill-Health ;* (2) *Death from Septicæmia.*—A miner, aged 42, was seen as an out-patient on 3rd February 1916. He complained of weakness of about a year's duration. He had nausea and discomfort at irregular intervals not related to meals, and occasionally suffered from giddiness. His appearance was suggestive of pernicious anæmia, but an examination of the blood showed only a slight secondary anæmia. His symptoms persisted, and he was admitted to the ward on 20th April 1916.

Family history of no importance. Previous illnesses trivial. Present illness began 2 years ago. Patient noticed that he was getting yellow. This colour remained. He then became breathless and weak. Gastric discomfort and nausea began three months ago.

On examination patient seemed well nourished, but he had a very sallow appearance. Temperature normal.

Alimentary System.—Occasional feeling of fulness and nausea. Tongue large and flabby, and slightly furred. Teeth fairly good. Tonsils slightly enlarged, not inflamed.

No abnominal tenderness or gastric splashing could be elicited.

No enlargement of liver or spleen.

A test-meal showed no free acid. Total acidity 25. No organic acids; no blood. Microscopically nothing but the remains of foodstuffs were found. X-ray examination after a bismuth meal showed an apparently hypertonic stomach.

The blood showed red corpuscles 4,600,000; Hb. 90 per cent.; leucocytes, 4000. There was a relative lymphocytosis, the white cells of the lymphocyte group together amounting to 52 per cent. of the total.

The pulse-rate varied from 84 to 100. The heart was not enlarged. There was no murmur. The urine was healthy, and there was nothing noteworthy in the other systems.

No further symptom could be discovered during the first nine days of patient's stay in hospital. The temperature never exceeded 98°. On the afternoon of the tenth day the temperature suddenly ran up to 103·5°. A very thorough examination failed to elicit any cause for this. Next day the temperature remained high; pulse 120; respirations 28. Patient became delirious and practically unconscious, and death occurred.

A post-mortem examination conducted by Dr. Miller revealed patches of interstitial change in the myocardium, particularly in the papillary muscles. Lungs congested and œdematous. Brain œdematous—no exudate. Stomach congested, with glairy mucus adherent to the surface. No ulcer in stomach or duodenum. Bile flowed easily from the gall-bladder to the duodenum. Liver soft and pale. Spleen enlarged, soft and pale, and diffluent in consistency. Kidneys slightly enlarged and congested. There was a small persistent thymus. There was enlargement of the lingual, and slight enlargement of the faucial tonsils.

On pressing the tonsils beads of pus exuded from the pockets. The pus contained Gram-positive cocci in pairs and short chains. Films made from cultures showed similar organisms, but a few were Gram-negative.

Comments.—The case is a remarkable one. The important symptoms during life were weakness, a sallow colour, and rather indefinite gastric symptoms. Death took place in less than 24 hours after the onset of pyrexia. There were never symptoms to call attention to the tonsils, and even after death their appearance did not suggest any serious condition. It was only when they were pinched with forceps in the course of a systematic examination of the lymphoid tissues that the purulent condition was discovered.

It may be supposed that an infective condition of the tonsils led to the patient's weakness and chronic ill-health, and that a sudden increase in virulence or a new infection led to the acute condition from which he died. The diffluent spleen was characteristic of an acute infection.

It may be noted that Cabot has called attention to the existence of a relative lymphocytosis rather than a polymorph leucocytosis in a certain number of suppurative conditions.

Case III.—*Tropical Liver Abscess Obscured by Pleural Effusion.*—A naval stoker, aged 34, was admitted to hospital on 11th April. He complained of breathlessness and pain in the right side of the chest.

Previous illnesses included several attacks of gonorrhœa, jaundice in 1911, dysenteric diarrhœa in 1913, pleurisy and hepatitis in 1915.

Present illness seems to have begun in August 1915, when patient began to feel breathless and had some pain in the chest.

About the end of March 1916 he says he took cold. The ship's surgeon found temperature 99°, pulse 100, dulness on the right side of the chest to the 5th rib, and ronchi at the left base. He was transferred to a hospital ship where the sputum was examined three times for tubercle bacilli with negative results.

The chest was explored on 2nd April, but no fluid was obtained.

On 5th April about 50 ounces of blood-stained fluid was withdrawn.

He was transferred to the Royal Infirmary on 11th April.

On admission patient looked pale and ill; the respirations were 34, pulse 112, temperature 99·5°.

Examination of the chest showed immobility of the right side, percussion dulness with absent breath sounds, and absent vocal resonance from the right base to the level of the 3rd rib in front.

At the left apex posteriorly there was slight percussion dulness, with prolonged expiration and an occasional crepitation.

The cardiac impulse was displaced to the left of the nipple line.

The other systems showed nothing to note.

Progress.—On 14th April an exploring needle was introduced on the right side. A side tube connected with a mercury manometer showed a positive pressure of 75 mm. of mercury during inspiration and 20 mm. during expiration. Fifteen ounces of fluid were withdrawn. This fluid was blood-stained, sero-purulent, and showed flakes of fibrin. On microscopical examination it was found to contain polymorphonuclear leucocytes in enormous numbers. In view of the fact that we had failed to remove more than a small proportion of the fluid apparently present and the characters of the fluid and the high positive pressure, I advised the transfer of the patient to a surgical ward. He was accordingly transferred to the charge of Professor Caird, to whom I am indebted for the notes following.

On the 17th April the chest wall behind was swollen and reddened, œdematous and tender. This was most marked over the right scapular area, where there was a suggestion of fluctuation.

On 18th April, under novocaine anæsthesia, Professor Caird made an incision below the scapula in the line of the rib. After cutting through the thickened and œdematous integument, pus and blood escaped before the pleura was reached.

An exploring needle was then inserted into the pleura and pus was drawn off. Sinus forceps were introduced in the line of the needle and forcibly opened. A rubber tube was inserted. A quantity of turbid reddish fluid followed by clear yellow serous fluid made its escape, jetting out of the tube as if it were under high pressure.

The dressings quickly became soaked through and required frequent changing.

On 20th April patient was dyspnœic and cyanosed. A needle was passed into the right pleura and 43 ounces of rather thick pus and blood were drawn off. This appeared to give considerable relief.

On the morning of the 21st, patient looked and felt better.

Later in the day he took another attack of dyspnœa, which proved fatal.

A sectio was made by Professor Lorrain Smith. On opening the thorax universal old fibrous adhesions were found over the right lung. Near the base was a cavity with pus (empyema).

There were slight adhesions over the lung. Otherwise the cavity was normal, but the left lung was pushed up towards the neck. The right lung showed marked collapse. The left lung showed slight collapse, and in the upper lobe was a fibrous scar surrounded by a zone of recent tubercle. There was no pneumonia or bronchitis.

The heart showed nothing to note.

There was no peritonitis or fluid in the abdomen, but the diaphragm was adherent to the liver throughout, and the right lobe of the liver showed in the exposed parts deep congestion. An abscess cavity was found occupying the greater part of the right lobe. The pus was thick and blood-stained, and of a yellow colour. The wall was covered with a thick layer which looked like necrosed tissue.

The rest of the liver was very fatty.

The opening of the bile-duct was congested and swollen.

Stomach appeared healthy. The duodenum showed moderate congestion.

There was no ulceration or fibrous thickening in the large intestine.

Spleen and kidneys showed nothing of note. There were some caseous and calcareous mesenteric glands.

Comments.—While the case was under my care the possibility of liver abscess never occurred to me. I cannot yet see how it could have been diagnosed. The physical signs were effectively hidden by the pleural effusion, and the existence of a tuberculous lung apex suggested a likely cause for the pleurisy. The abscess which developed in the chest wall was probably induced by infection as the exploring needle was withdrawn.

CASE IV.—*Vomiting a Prominent Symptom in Ingravescent Apoplexy.* —Several years ago I attended a lady, aged 45, suffering from severe secondary anæmia due to metrorrhagia caused by multiple fibromata. The bleeding never recurred. She was the subject of an old hemiplegia on the right side. She could walk fairly well, but the movements of her arm were greatly impaired. Speech was also interfered with, and there was considerable difficulty in swallowing. About a year afterwards I was asked to see her one evening, and was told that she had been suffering from dyspepsia for several days. She had limited her supper to a bowl of bread and milk and had retired to bed. Half an hour later her husband found her, still dressed, lying on the bed clothes, suffering from sickness. She was in this condition when I saw her. She obviously recognised me, but did not speak. Knowing her speech difficulty I did not attach much importance to this. The sickness was very violent, and was not associated with much nausea. She was restless and threw about her sound arm, and to a less extent the paretic arm, with peculiar grandiose movements.

Beyond the enormous fibromata abdominal examination was negative. There was no cardiac lesion. I came to the conclusion that the severe sickness had induced a hysterical condition, and left the room with the intention of expressing this view to her husband. I have always felt thankful that I did not do so. What I did say was that I would like to see her a little later. After smoking one of her husband's cigars I saw her again.

The grandiose movements were now less, but the left hand and the left side of the lip showed twitching movements. The pulse was slow, the breathing slow and noisy. There was no difficulty in concluding that the case was one of apoplexy. Next morning the left side was paralysed, and the patient died at noon.

The diagnosis was made difficult by the old hemiplegia, and the history of dyspepsia was an alluring "red herring."

The case is worth recording, since vomiting is not a common symptom of apoplexy, and in many text-book articles on the subject it is not even mentioned.

OBITUARY.

WILLIAM ALLAN JAMIESON, M.D., LL.D., F.R.C.P.

Born in the Manse of Dreghorn, the "Dalmailing" of Galt's *Annals of the Parish*, in 1839, Jamieson received his early education at Irvine Academy, of which he was Dux in 1854. He spent two years in the Arts Classes of the University of Glasgow, but not, as might perhaps have been expected in an only son of the manse, with any intention of following in his father's footsteps. Nor at this stage of his career had he any thought of medicine, and he left Glasgow without completing his curriculum, to seek his fortune in Queensland, where some of his relatives had settled. He was singularly unsuited for the life, and very soon realised the fact, but he persevered in his undertaking for two years, and, as he once told the writer, might have been there all his life had he not unburdened his soul to a sympathetic lady relative one Sunday afternoon. It was she who suggested medicine to him, and for the suggestion the Edinburgh Medical School owes a debt of gratitude to Mrs. Galbraith. For she had judged rightly, as Jamieson soon showed when he got to work in Edinburgh, where he graduated in 1865 as the first man of the year.

Two years as assistant to a relative in a busy working-class practice in Preston convinced him that he would be more useful in other surroundings, and he refused a tempting offer to settle down there and bought a practice in the very different atmosphere of Berwick-on-Tweed. Here he spent nine useful and evidently happy years, for he always spoke with affection of the place, and in after years was perhaps specially attentive to any of its inhabitants who came to the Infirmary as patients.

In 1876 he migrated to Edinburgh and put up his plate in Rutland Street, with no particular intention of practising dermatology. He was interested in it, and had observed with quiet amusement the violent changes in treatment when Bennett took over from Laycock the charge of the Skin Wards in the old Infirmary, and *vice versâ*—they had charge alternately for periods of three months.

After he had been some years in Edinburgh it was suggested to him by Douglas Maclagan and Argyll Robertson that there was room for a dermatologist in the city. He thought it well over, made up his mind to accept the advice, and went to Vienna to study under Hebra, then at the height of his fame.

On his return he resumed his general practice, for Edinburgh was not yet ripe for a specialist in dermatology. His application for a department in the Infirmary met with no encouragement, and even the dispensaries looked askance at the new specialty. He was appointed one of the ordinary physicians at the Royal Public Dispensary and naturally used his opportunities to develop a skin department there. Again and again he knocked at the doors of the Infirmary in vain; it was not till 1884 that he was appointed Extraordinary Physician for Diseases of the Skin. He used to relate that he owed the appointment to his success in curing an obstinate eczema of the leg of one of the medical managers, who was then all-powerful on the Board.

He began his Saturday morning cliniques in a room which, reconstructed, now forms part of the Male Skin Ward. At first the cliniques did not attract very much attention, but gradually the knowledge spread among the students that there was a good deal to learn from Jamieson, and in a year or two it became necessary to migrate to the large surgical, and then to the West Medical Theatre. Here Saturday after Saturday he taught for twelve or thirteen years, till in 1899 he at last attained the object of his desire and was appointed Lecturer in the University. But it was at the Saturday cliniques that he was at his best, and he continued them regularly till his retirement in 1906. He took the cases as they came, and in one morning's clinique would deal with such diverse subjects as psoriasis, ringworm, rodent ulcer, and lupus, pointing out the special features of each case and conveying at the same time a great deal of information about the disease of which it was an example. He was strong on treatment, and his sonorous dictation of prescriptions, always in unabbreviated Latin, to the clerk on duty is, to those who were his students, something more than a lingering memory.

He kept up his interest in dermatology to the last, and till a few months before his death came regularly once a week to the Skin Department to see any interesting cases and to offer suggestions for the trial of some new treatment which he had come across in his gleanings from some of the many journals which he studied so perseveringly.

Jamieson was quietly but sincerely proud of his work in the Infirmary, and of how, beginning in a little dark room he had gradually carried his point by sheer merit and hard work, never by self-assertion, until he left the Royal Infirmary of Edinburgh with the most fully equipped Skin Department of any general hospital in Great Britain. There was a touch of irony in the fact that the actual entry to the new quarters did not take place till he had demitted office and that his successor was the first to enjoy the full fruit of his labours.

He conferred yet another benefit on the department, for in fulfilment of her husband's desire Mrs. Allan Jamieson has handed over to the present Lecturer on Dermatology his valuable collection of plates illustrative of skin diseases, so that they may continue to be useful to the students of the Edinburgh Medical School.

From 1886 to 1891 he acted as Visiting and Consulting Physician to the City Hospital for Infectious Diseases, where, along with Dr. Edington, he conducted a long and painstaking investigation on the etiology of scarlet fever.

His text-book published in 1887 was for long very popular and ran through four editions, and he contributed more than a hundred original papers to British and foreign journals. His long association with this *Journal* has already been alluded to; for nearly twenty years he was a regular contributor of original articles, epitomes, and reviews. At the Medico-Chirurgical Society he was a frequent exhibitor, and by his demonstrations there of illustrative cases did much to arouse interest in diseases of the skin.

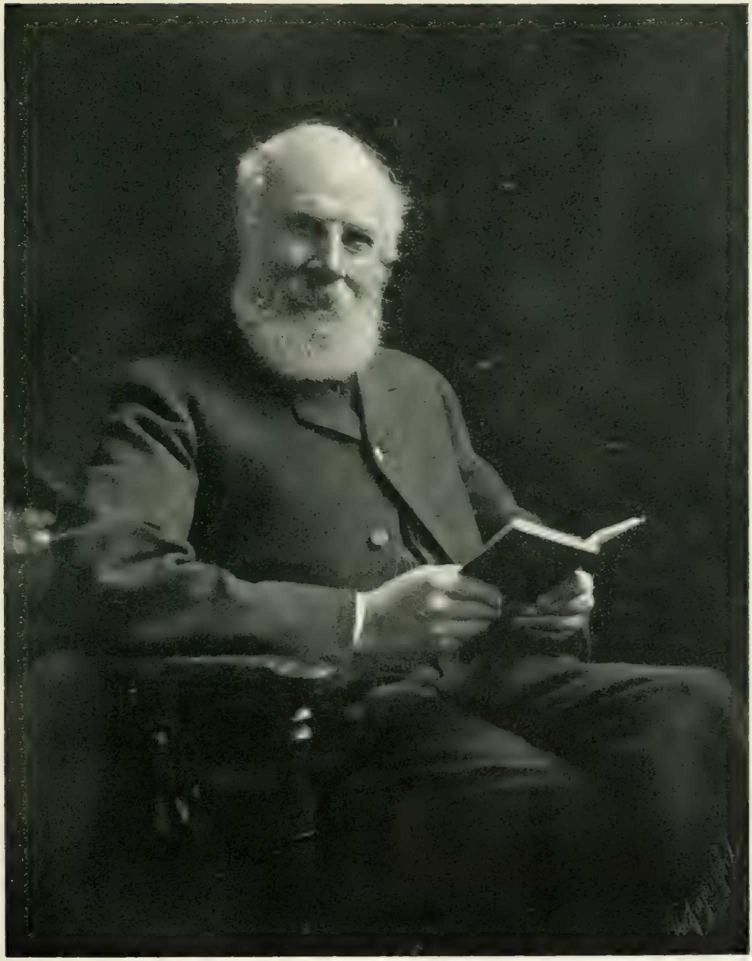
He became a member of the College of Physicians in 1876 and a Fellow the following year. He was not among the active politicians of the College, though now and again when some subject on which he felt deeply was under discussion he would intervene with a fervour which somewhat surprised those who did not know how deep were the feelings under his calm demeanour. In 1905 as a President-designate he was elected a member of Council, and he set himself with determination to master all the laws and forms which he would have to administer. His presidency was, as he hoped it would be, uneventful. He filled the office with dignity and acceptance, dispensed an abounding and gracious hospitality to the Fellows, and often in the rather strenuous times which followed expressed his thankfulness that his time had been so peaceful.

He had three relaxations—Greek, archery, and cycling. He was an active member of the Hellenic Society, and after his retiral from the Infirmary he paid several visits to Greece to see with his own eyes the scenes of which he had so often read.

Archery was his relaxation from his youth up, and he won a silver cup at the famous Kilwinning Paperigo at the age of 19. In 1875, before he came to Edinburgh, he became a member of the Queen's Bodyguard for Scotland Royal Company of Archers, and soon had his name inscribed on nearly all of their historic trophies. He won the Queen's Prize twice, and wore on his uniform the special star indicating that he had gained over fifty prizes. On Professor Annandale's death he was appointed Surgeon, and when as President of the College he presented the College Address of Congratulation to King George on his accession he wore the Presidential robes over the gorgeous uniform of the Surgeon to the King's Bodyguard. Nowhere was Jamieson more beloved than at Archers' Hall.

He took to cycling at an age when most people have to give it up, and he continued it almost to the last, taking numerous tours in the quieter districts of Scotland, England, and the North of France.

He was a regular worshipper in St. John's Episcopal Church, and



(Photo by Lafayette, Ltd.

DR. WILLIAM ALLAN JAMIESON.

for many years a devoted vestryman. He took a keen interest in the Order of St. John of Jerusalem, and presented the crypt of that Chapel in London with a window, and the ophthalmic hospital in Jerusalem with an X-ray outfit. He was created a Knight of Grace in 1907.

Never was there a more delightful colleague. There was not an atom of jealousy in his composition, and I can only recollect one occasion, and that well-deserved, when he spoke harshly of any one. He had his reward in the attitude of almost filial affection with which he was regarded by assistants, nurses, and patients.

He bore his illness with quiet patience, though he was very weary before the end came, and he died the death as he had lived the life of a Scottish gentleman. N. W.

WILLIAM ALLAN JAMIESON.

A Retrospect.

THE number of those who were fellow-students and graduates in the middle sixties of last century is now naturally a small and steadily diminishing quantity, but a residue remains to mourn the loss and to cherish the memories of those who have gone before, and there is not one of that living remainder who, when the news of the death of Allan Jamieson reached him, did not echo sympathetically and sorrowfully a line in the greatest of English memorial poems—

> "How good! how kind! and he is gone."

It may well be one of the gracious provisions against the time of old age that the early imprints in the folds of memory are the most enduring, for they hold not only the impressions registered through waves of sound, but even those more lasting which, etched by rays of light, leave with us cherished portraits of our friends, and this is mine—outlined half a century ago—of him whose loss we now deplore.

He came among us students in 1861, older and manlier than most, for he came in all the vigour and grace of his full manhood—a tall, handsome, well-built fellow, with good and clear-cut features, quiet, earnest, and soft eyes, a long brown beard, a winning and kindly manner which drew many to him and which gave to all the feeling of his being a *man*—yet, gentle exceedingly. And this bearing of his impressed us the more when we learned that before beginning the study of medicine he had spent some time on an Australian sheep-run, where he had found the life rough, boisterous, and uncongenial, but the early and beneficent influences of the Scottish manse—one of the best and greatest of our national nurseries—had fashioned a son cast in so strong a mould that a rude environment had left no trace upon him. He proved—as he had already proved in Glasgow, where in his classical studies he had won notable distinction—a very hard-working student, diligent in his taking of notes and ever ready to discuss with his fellows or indulge in mutual examination on the subjects of the daily lectures, while at the bedside he was a careful, acute, and accurate observer. He did well in all his class and professional examinations, and was regarded by his fellows as a distinguished student who was bound to succeed in his profession.

This feeling was emphasised by the fact that his two greatest friends—and a man may justly be judged by the friendships he forms—were two of the ablest men of his year—Lauchlan Aitken, who afterwards, while private assistant to the late Sir J. Y. Simpson, fell into bad health and had to forego at its very outset what would otherwise have been a most brilliant career and who died many years ago, and George Haliburton Hume, until quite recently one of the most capable and distinguished surgeons in the north of England and who now lives in happy retirement.

One loved recreation Jamieson followed keenly in his college days, as he had done from his boyhood—that of archery, and his great interest and skill in it endured unabated and were attended by many triumphs all the days of his life.

In those now far distant days—and they remained the characteristics of his life—in all he thought and did he was unselfish, earnest, and true, holding fast as one of his watchwords, one of the mainsprings in all his endeavours, the noble selfless word Duty.

When in 1865 he received his degree with high distinction he did this in excellent company, for the names of John Chiene and John Wyllie, already marked for high positions and to which they subsequently attained, stood with his on the honour roll. After a term of assistantship he began practice in Berwick-on-Tweed, led probably to this by the fact that a distant relative, Dr. Philip Maclagan, was then and there a name to charm with, and from time to time news reached me of his steady and continuous success.

But a grievous domestic blow fell upon him, and whether it was this or that the well-founded feeling that he was fitted for a wider sphere of influence grew within him is to me unknown, but in 1876 he settled in Edinburgh, where he quickly established a good general practice.

Then it may have dawned upon him, as it had upon many of his early friends, that the practice of dermatology was still a very largely undeveloped field of work, and with a view to engaging in it he went to Vienna, became once more a student, and under the teaching of the greatest dermatological authority of that day, Hebra, he soon mastered his subject. Thus with a new and additional equipment—another good arrow in his well-filled professional quiver—he returned to Edinburgh. In his new venture he found some uphill work, for neither the profession nor the public were then very quick to grasp the true importance of, and the great strides which had been made in the knowledge of diseases of the skin, and he had to wait, but during this waiting the flexible steel of his courage remained unbroken, and we all know how in the end he triumphed. He became a much valued and successful teacher in the Medical School; and through his excellent text-book, published in 1887, and which ran quickly through several editions, he gave invaluable advice to many of us, his compeers, who, living far afield from the help of dermatologists, were thus enabled to diagnose and to treat with success some uncommon and troublesome conditions.

For many years his life and mine were passed far apart—his, in the grey and, by him, much loved city of the North—mine, by the sunlit shores of the Mediterranean; but our warm friendship remained, and when three years ago we came again into intimate contact its old and unbroken threads were readily gathered up, and I found that my early and happy impressions of him remained unaltered. After a very successful career, in which by his labours he had enriched the knowledge and enhanced the utility of his profession, had added by his example and teaching credit to his *Alma Mater*, had held important hospital appointments, had as a crowning honour been President of his College, and had gained the affection and respect of hosts of friends, he remained the unassuming, lovable, gentle man of our earlier but unforgotten days. It not infrequently happens that the passage of the years treads down the brightness and the valiancy of the spirit of those over whom much time has passed, but it was not so with him, for all his interests remained undimmed, and his attitude in these stormy days of war and tumult was that of a still martial and very confident patriot.

The last time it was my privilege to see him, and this a few months before his death, the courage and the fortitude which had ever been his great and helpful possessions remained unimpaired, for as he spoke of his rapid loss of weight and increasing enfeeblement he evidently realised fully what these possibly meant, yet he ended with the remark quietly and courageously spoken, "Ah, well! the proposition of Anno Domini must be faced."

The shadows were falling, but they were falling around one to whom they brought no disquiet, and to me he never seemed more serenely attractive.

Now his record here is closed—the record of a long, clear, and honourable life, of a man in whose spirit there was no guile, whose portrait is enshrined in many memories as that of one greatly beloved, and of whom it may well be said, as it was by a great orator of another good man, that if his summing is now being written up in the Book of Life the Recording Angel will find it hard to know where to drop the obliterating tear.

> "'Tis an old belief
>   That on some solemn shore
> Beyond the sphere of grief
>   Dear friends will meet once more,
> Beyond the sphere of time,
>   Of sin and fate's control,
> Serene in ceaseless prime
>   Of body and of soul."

J. A. MacDougall.

RECENT ADVANCES IN MEDICAL SCIENCE.

NEUROLOGY.

UNDER THE CHARGE OF

EDWIN BRAMWELL, M.B., F.R.C.P.

HEMIPLEGIAS DUE TO WAR WOUNDS—TOPOGRAPHICAL DIAGNOSIS.

THE diagnosis of the situation of the lesion in cases of hemiplegia due to gunshot wounds is of some interest from the standpoint of surgical intervention. Guillain and Barré (*La presse médicale*, No. 16, 16th March 1916) indicate certain criteria of diagnostic significance in this relation. Cases in which the pyramidal tracts are injured in the medulla, pons, or region of the crura cerebri manifest themselves in cranial nerve palsies, crossed paralysis, and sensory disturbances, the latter often presenting a syringomyelic dissociation which can seldom fail to permit of a definite conclusion as to the situation of the lesion. When the hemiplegia is a consequence of injury to the motor tracts in their course between the cortex and the peduncle localisation is often difficult, and it is with the focal diagnosis of such lesions that the authors collate their experience. *Cortical lesions* often affect a single limb, a segment of a limb, or even a particular group of muscles. Jacksonian epilepsy may be observed. A continuous localised epilepsy, a rare symptom occasionally met with, appears to depend on an irritative cortical lesion. Thus in one of the cases referred to movements of flexion and extension of the right toes were observed to continue for eight days. Disturbances of superficial and deep sensibility and astereognosis may be present. The tendon reflexes are exaggerated, but the exaggeration is less pronounced than in lesions of the internal capsule. The plantar reflex may be abolished in cortical lesions. In some cases it is, in the first instance, of the extensor but it soon changes to the flexor type, notwithstanding persistent exaggeration of the tendon reflexes and the presence of ankle clonus. Again, it may be irregular and inconstant. *Lesions of the corona radiata* cause total hemiplegia which is flaccid at first but may become spastic. The tendon reflexes are exaggerated, while ankle clonus and the signs of Babinski and Oppenheim are present. *Lesions of the pyramidal fibres in the internal capsule*, even when they are of small size, cause complete hemiplegias which tend to be spastic. The tendon reflexes are exaggerated and the plantar reflex is of the extensor type. *Pyramidal lesions which also implicate the basal nuclei, and especially the thalamus*, produce motor disturbances identical with capsular lesions, but in addition objective sensory disturbances with defective localisation of sensory stimuli in the affected limbs, and it may be severe pain, hyperæsthesias and paræsthesias. Choreic and athetoid movements have been observed.

CONTRACTURES AND TRAUMATIC PARALYSIS OF REFLEX ORIGIN.

Contractures are not uncommonly met with as a sequel to gunshot wounds and injuries of the limbs. They have been attributed by nearly all neurologists to hysteria. Some of these contractures, however, can neither be produced by suggestion nor dissipated by persuasion, and Babinski and Froment (*La presse médicale*, No. 11, 24th February 1916) suggest that these are of reflex origin. Charcot, it will be remembered, advanced the view that the arthritic muscular atrophies, which are unaccompanied by a reaction of degeneration and are associated with vaso-motor and trophic alterations in the skin, and it may be with contractures and paresis, are produced reflexly. In his opinion the articular lesions "reflect on the spinal centre whose cells are affected by inertia or stupor or, on the contrary, are increased in their activity." Claude, referring to his war material, describes, in addition to hysterical symptoms, similar manifestations, notably painful localised and persistent contractures which it is very difficult to class. He regards these contractures, in the first instance, as of the nature of reflex, defensive attitudes which become fixed as a consequence of a psychological mechanism of a type similar to that which induces hysterical manifestations. Again, Sicard describes contractures of the hand which resist all treatment, which are aggravated by massage and electricity, and which only disappear slowly. Other observers, too, have remarked upon the frequency with which fixed attitudes or contractures, presenting unaccustomed features, are met with in military practice.

The purpose of the present paper is to indicate certain symptomatic characteristics which, in the opinion of the authors, serve to distinguish these disturbances which they hold to be of reflex origin. Among the commoner types of these reflex contractures are the following: The upper limb extended and adducted to the trunk; the arm flexed at the elbow and wrist and pronated; the "main d'accoucheur"; the lower limb extended with the foot in the varus position; the leg flexed at the knee. In the case of the lower limb these contractures are usually very pronounced and more difficult to reduce than those met with in the upper extremity. Thus in the "main d'accoucheur" the fingers are easily separated, but if left to themselves they slowly resume their former position, a feature which is peculiar to the type of contracture under consideration. These contractures are in most cases localised to a segment of a limb or to a single group of muscles. The authors have also met with cases of flaccid paralysis which they believe to be of similar causation. It is to be remembered that the phenomena referred to are often associated with lesions of the peripheral nerves and hysterical manifestations, which complicate the diagnosis.

The following are the objective characteristics which in the authors' opinion distinguish these reflex contractures and palsies from hysterical conditions: (1) There are usually marked vaso-motor symptoms; (2) a local hypothermia may be present; (3) a distinct degree of hypotonia is sometimes observed; (4) the mechanical excitability of the muscles is increased—a very important point; (5) hyperexcitability to both the faradic and galvanic currents and occasionally diminished excitability are noted; (6) these contractures only disappear under profound anæsthesia; (7) the tendon reflexes in relation to the affected part may be elicited under deep anæsthesia when the other tendon reflexes have disappeared.

In conclusion, it may be repeated that psychotherapeutic methods are inefficient in dealing with these reflex paralyses and contractures.

GUNSHOT WOUNDS AND INJURIES OF THE SPINAL CORD.

James Collier (*Lancet*, 1st April 1916) in opening a recent discussion on this subject before the Medical Society of London refers to a number of points of interest. As is well known, a paraplegia is not infrequently produced by a projectile which does not penetrate the substance of the spinal cord. It would seem that in these cases the pathological changes in the spinal cord are the result of increase of pressure which manifests itself in symptoms referable to the portion of the cord distal to the wound, and, it may be, by loss of consciousness as the result of the increase of intrathecal pressure extending upwards to the brain. Collier mentions three cases of injury to the cervical cord in which consciousness was not lost and complete recovery was observed. Since recovery occurred, the lesion must have been an indirect wound, and he consequently suggests that the initial loss of consciousness which is sometimes seen may indicate that the bullet has traversed the spinal cord itself. The passage of a high-velocity projectile in the immediate vicinity of the spinal cord or the impact of the projectile upon the vertebræ may produce various degrees of damage with, it may be, comparatively slight paraplegia and complete recovery, or, on the other hand, a total and persistent transverse lesion. Again, the bursting of a high-explosive shell may produce a permanent total transverse lesion, even though there is no bruising of the surface of the body and no evidence of injury to the bones. Intrathecal hæmorrhage at times causes puzzling symptoms. Thus an injury at any level of the spinal cord may be associated with hæmorrhage, the blood tending to gravitate. As has been proved by post-mortem examination, an organised clot may be formed which involves and causes degeneration of the nerve roots of the cauda equina with a consequent atrophic palsy of the muscles which they supply.

The condition of the plantar reflex affords an indication both as to the severity of the lesion and as to return of function. Gordon Holmes in his Goulstonian lectures points out that in all the cases of severe lesion of the spinal cord which he had examined shortly after the injury the plantar reflex was either completely absent or of the reduced flexor type. None of these cases, however, were examined until some two days after the injury. Collier reports a case of total transverse lesion, seen in civil practice and examined a few hours after the injury, in which the plantar reflex was definitely extensor. He holds that there are four consecutive stages in the type of the reflex following a transverse lesion: (1) an initial extensor response; (2) either a complete absence of the reflex or a reduced flexor reflex; (3) a persistent extensor response which is met with in less severe cases or during the process of recovery when this occurs; and (4) the normal flexor responses.

An interesting point which is brought out by the study of the recent war material is that a total unilateral lesion is followed by complete flaccidity, loss of the knee- and ankle-jerks, and reduction of the superficial reflexes on the side of the lesion. The contractures met with in these paraplegic cases are interesting. Three types are met with: (1) the dropped foot with retracted toes or pes cavus type; (2) the retracted foot with retracted toes, or calcaneus type; and (3) the dropped foot with dropped toes, similar to the condition met with in cases of peripheral neuritis. The last-mentioned type appears to indicate a complete transverse lesion. In distinguishing between root lesions and central lesions the following points are worthy of note: (1) In the cervical region extensive root lesions are only met with when there is at the same time severe injury to the bones; (2) root lesions are associated with anæsthesia of longitudinal distribution, while in central lesions the sensory loss is of the glove or stocking type; (3) in the cervical region a relative escape of the long columns or early evidence of recovery in these with severe palsy of the upper limbs is in favour of a root lesion; (4) the most certain diagnostic indication in the lumbo-sacral region is the level of the wound in the spine. A point which is apt to be forgotten in relation to the disturbance of sensibility met with in hemi-lesions of the cord is that there is no crossing of the sensory fibres below the last dorsal segment, hence a unilateral lesion at the level of or below the first lumbar root does not produce Brown-Sequard's paralysis. In the majority of Collier's cases of unilateral lesion the vibration sense was lost or most affected upon the side opposite to the lesion. Severe pains in the limbs are observed in some of these cases of paraplegia. They may conceivably be caused by irritation of the sensory tracts, by meningeal adhesions or matting

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of the nerve roots of the cauda equina caused by an organised blood-clot within the theca, or by muscular rigidity and flexor spasms.

Among prognostic indications Collier points out that the early reappearance of the plantar reflex, or its change from the flexor to the extensor type soon after the seventh day, or the presence of an extensor response earlier than this, are of favourable moment as indicating either that the lesion is not complete or that improvement is already occurring. Again, early return of the knee-jerk and ankle-jerk is of value, although it is to be remembered that even in the less severe cases the latter does not reappear before the fourth day. The condition of the reflexes on one side affords no evidence as to the prospect of recovery on the opposite side of the spinal cord. Early return of sphincter control is also a favourable sign.

OBSTETRICS AND GYNECOLOGY.

UNDER THE CHARGE OF

A. H. F. BARBOUR, M.D., AND J. W. BALLANTYNE, M.D.

The Protection of Pregnancy in France.

Even before the outbreak of the war the vital statistics of France were far from satisfactory on account of the low rate to which natality had fallen, and various attempts were being made to conserve infantile lives. With the commencement of hostilities matters were made much worse, for now to the low birth-rate had to be added the large number of adult lives which were being sacrificed on the battlefield. Further, the tendency of war would be to raise the infantile mortality and morbidity rates, and so make the conservation of young life more difficult still. With these considerations in mind Dr. Georges Vitoux (*Arch. mens. d'obstét. et de gynéc.*, December 1915, ann. iv. pp. 439-445) looked forward with apprehension to the effects of the war on the population of France, seeing the risk that if radical measures were not taken his country might lose her place amongst the Great Powers. Soon after August 1914 two immediate results of war were evident—an increase in the number of necessitous mothers due to the military mobilisation which withdrew the men from their ordinary work, and a lessening of the amount and a depreciation of the quality of the milk available for the civil populace on account of the derangement of the railway system. This, too, was happening at the time of the year when the intestinal disorders so fatal to infant life were commonly prevalent; and the summer of 1914 was unusually hot. Vitoux is now able to report on the measures which were immediately taken to ward off disaster, so far at any rate as Paris was concerned. A new organisation was called for, and it was provided. This was named the "*Office central d'assistance maternalle et infantile*," and it came into being at the very beginning of the war under the patronage of Mme. Poincaré, the honorary presidentship of Mme. Michel, and the presidentship of Paul Strauss, Professors Pinard and Lépine acting as vice-presidents. This *office central* made known its programme, which was as follows: During the whole duration of the war and in the whole extent of the military government of Paris, to assure to every necessitous woman being pregnant or having a child of less than three years of age the social, legal, and medical protection to which in civilised society she has a right. No woman was to be overlooked and no child forgotten. Dr. Vitoux rightly regards this as an epoch-making and most happy advance: for the first time, he says, the necessity for making the protection of the infant before his birth a real thing was stated in an altogether precise manner; in other words, it was affirmed that every pregnant woman must be protected. The first means taken to bring this about was the placing of an appeal before the population of the intrenched camp at Paris. Only its words and not its arresting typological form need be given. They were: "*Pour les mères et enfants du premier âge.* Parisiens, Les pères sont à la frontière; Défendons les Mères et les petits Enfants; A leur aide, et vite. L'Office central, fondé sous le haut patronage de Mme. Raymond Poincaré et la presidence d'honneur de Mme. la générale Michel, accepte avec reconnaissance tous les concours, tous les devouements et tous les dons. *Sauvons nos Bebes!* Les dons de toute nature sont reçus au Siège Social, 64 *bis*, rue du Rocher, de 9 heures à 11 heures et de 2 heures à 5 heures. Vu: Le Préfet de la Seine, M. Delaney. Generale Michel." The response to this appeal was immediate and liberal, and very quickly the next step, the enrolment of numerous voluntary women workers (corresponding, it would seem, in some degree to the health visitors of this country), was taken, and these women (named *mobilisées*) were soon engaged in tracking out and supervising the mothers and infants, especially in connection with the feeding of the infants. In the case of infants wholly or in part at the breast there was no difficulty; the securing of rest from work for the mothers met the case. The "bottle babies," however, were more difficult to arrange for; and indeed there was a pressing necessity, for infantile diarrhœa was increasing rapidly, and the milk supply was diminishing and was taking longer to reach its destination. The military authorities took prompt measures to correct the deranged supply of milk, and by a series of arrangements mobilised all the sources, as it were, and took pains to have the cows kept healthy and the milk hygienically dealt with. Further, steps were at once taken to bring existing societies or schemes for watching over pregnant and parturient women into line and to prevent overlapping. Again, in the eleven maternities established in the Parisian hospitals the number of beds previously devoted to pregnant women was nearly trebled, and a permanent system of what would be called in this country antenatal consultations was established. Hospital accommodation was also provided for the numerous pregnant refugees who fled to Paris in the first year of the war.

In that year (August 1914-August 1915) there were in Paris over 37,000 births, of which more than 27,000 were in the maternities "de l'Assistance publique" and 6000 more received help at home. These women, too, were not lost sight of, but their convalescence and the after-welfare of their babies were also watched over. The results were what Dr. Vitoux calls *paradoxically happy*, for in the first year of the war, according to Pinard, (1) the mortinatality lessened; (2) the puerperal maternal mortality diminished; (3) the total infantile mortality from birth to three years remained practically the same as in the preceding year, (4) a result greatly due to the many cases of diarrhœa in the first two months of the war and to many cases of measles; (5) the mortality from birth to the third month diminished; (6) the mortality from congenital debility decreased; (7) the number of abandoned infants diminished; (8) the duration of pregnancy was prolonged, *i.e.*, premature labours were fewer; and (9) the average weight of the infant at birth increased. If this could be done during the war, what advance in the direction of repopulation may not be achieved after it is over, was the question which Vitoux asked himself.

Such were the results in Paris during the first twelve months of the war (Pinard, *Ann. de gynéc. et d'obstét.*, 2, s. xii. 65, 1916); but Professor A. Pinard (*Le Journal*, No. 8585, 29th March 1916) is unable to give quite so satisfactory an account of the following half year (from August 1915 to the end of January 1916). Both mortinatality and the deaths due to congenital debility have returned to the figures they showed in 1913. The cause, according to Pinard, was not far to seek. Exactly the same organisation was at work but the interested parties did not so often have recourse to it. Through a restoration of commerce to a certain degree some of the pregnant women returned to work, and having no longer the help and medical supervision of the *Office central d'assistance maternalle et infantile*, they began again to give birth to dead children, sending up the mortinatality rate. Others of them, finding the work hard and sometimes excessive, began to have premature labours and to give birth to infants with congenital debility. The mothers did not apply for help, and so the infants were not cared for before their birth. Again the infantile death-rate began to rise once more, and Pinard ascribed this to the old and bad methods in vogue before the war. There had been a return to the smaller number of infants fed at the breast, and to the practice of artificial feeding and of boarding babies out. It was an axiom that whatever separates the child from its mother puts it in a state of suffering and of danger.

Now, between 1st August 1914 and 1st August 1915 there were 37,085 births in Paris, and of these children 4954 (or 13·35 per cent.) were boarded outside of the city; from 1st August 1915 to 29th January 1916 there was 11,895 babies born, and of these 2568 (or 21·65 per cent.) were placed outside of Paris to be nursed. Professor Pinard has no doubt that if this rate increase to 31·0 per cent., which it was in 1913, there would be a return to all the old unsatisfactory statistics then prevailing. It was necessary to press all the new plans as vigorously as ever. The mothers must show themselves as courageous in the doing of their maternal work as the fathers who strive and fall heroically at the front are doing their duty. Every infant must be protected before its birth and as soon as it is born as well as afterwards. The State must directly or indirectly give to every necessitous mother the means of rearing her infant and keeping him near herself during at least the first year of life. Professor Pinard is doubtless right when he concludes that the future of his country depends on the measures which shall now be taken, and he regards these as urgent, for, notwithstanding an intensive puericulture, babies (to use his striking phrase) are not being made and preserved as are munitions.

Dr. G. Lepage (*Ann. de gynéc. et d'obstét.*, 1916, 2 s., vol. xii. pp. 15-24) is dealing with a cognate subject when he inquires into the difficulties which have interfered with the success of the law of the 17th June 1913, which was intended to assure to pregnant and puerperal women sufficient rest in the last weeks of pregnancy and in the first month following confinement. One of these difficulties, that of being quite sure on obstetrical evidence of the expected date of delivery, is not easily to be overcome, unless women will resort to their medical attendant very shortly after the first missed period which signalises the commencement of gestation. Even then the uncertainty surrounding the fixing of the date of delivery is great, and consequently the mother runs the risk of losing the financial assistance which should be hers in the four weeks preceding the birth of her infant. Not only should the woman go early to her doctor, but he should make a very careful bimanual examination of the uterus in order to establish the diagnosis of pregnancy, relying on the softening of the uterine wall, on the increased size of the organ, especially in its antero-posterior and transverse diameters, and perhaps on the uterine contractions. Lepage thinks that if the fact that it is easier to arrive at a certain prognosis regarding the age of the pregnancy and the consequent date of delivery by an examination near to the time of conception were more generally known women would resort to a doctor sooner than they commonly do, and would thus make more certain of getting all the financial aid to which they are entitled. He therefore recommends the placing of a footnote in the booklet which is given gratis to women who may wish to benefit from the law of 17th June 1913, and making the note to read: every woman who, because of the non-appearance of the period, believes herself to be pregnant and wishes to share in the advantages accruing from the said law, ought (in order to know the probable date of her confinement) to consult the doctor during the fortnight following the date of the non-appearance of the menses. Another difficulty in the way of the law of 17th June becoming fully operative and completely successful is the amount of formality contained in the regulations and the number of documents which must be exhibited. Amongst the certificates is the medical one stating that the woman is pregnant, giving the probable date of delivery, and affirming that there are in her case circumstances which require her to rest in the last weeks of her pregnancy. For filling up this document (with the necessary preliminary inquiries and examinations) Lepage says "it is useless to add" that the law has not dreamed for an instant of remunerating the doctor for performing his difficult task. Lepage indicates other difficulties of a similar kind and makes suggestions as to ways of overcoming them; but it would seem that an amending Act is badly needed if the law is to do real good. J. W. B.

THERAPEUTICS.

UNDER THE CHARGE OF

JOHN EASON, M.D.

TETHELIN.

T. BRAILSFORD ROBERTSON (*Journ. Amer. Med. Assoc.*, vol. lxvi. No. 14, p. 1009) claims to have isolated the growth-controlling principle from the anterior lobe of the pituitary body. In an earlier contribution (*Journ. Biolog. Chem.*, 1916, vol. xxiv. pp. 397, 409) he has described the methods of isolating the substance, its chemical properties and physiological actions, and the evidences of its identity with the growth-controlling principle. To this substance he has given the name "Tethelin" (from τεθηλώς, growing). Tethelin is soluble in water to the extent of about 5 per cent. It is also soluble in alcohol, ether, chloroform, and carbon tetrachloride. It is insoluble in a mixture of one part by volume of absolute alcohol and one and one-half parts by volume of dry ether. It contains 14 per cent. of phosphorus, and nitrogen in the proportion of four atoms of nitrogen for every atom of phosphorus, two of the atoms of nitrogen being present in amino groups, and one in an NH group which is converted into an amino group by hydrolysis with barium hydroxide. It yields unsaturated fatty acid soaps of barium on hydrolysis with barium hydroxide, and among the products yielded by hydrolysis with barium hydroxide followed by hydrolysis with dilute sulphuric acid is found i-inosite. Tethelin is very markedly hygroscopic, absorbing water rapidly from moist air. On standing after pulverisation in contact with air in the presence of traces of moisture it darkens perceptibly in colour and its iodine absorption value decreases. This decomposition is accelerated by warming. If packed in evacuated glass tubes, however, and perfectly dry it may be heated to 80° C. (176° F.) without any perceptible discoloration. Tethelin probably contains an imino-azolyl group, and to this extent may be regarded as being related to the physiologically active substances of the *posterior* lobe of the pituitary body. It is not, however, possessed of the characteristic physiological activity of these substances, relatively large doses administered intravenously to rabbits (50 mgrs. per kilogr.) producing only a very slight transient *fall* in blood-pressure, and no diuresis.

Each anterior lobe of the ox pituitary may be estimated to yield about 10 mgrs. of tethelin.

The action of tethelin in doses of 4 mgs. per diem administered by mouth to mice between 4 and 60 weeks of age consists in a marked retardation of the early (pre-adolescent) growth in weight, and an equally marked acceleration of post-adolescent growth. Mice which have received tethelin are much more firmly and compactly built than normal animals of the same age. Weight for weight, the tethelin-fed animals are smaller than normals, and size for size they are heavier.

The favourable effect on the nutrition of the skin is very marked. Robertson investigated the effect of administering it in animals subjected to excessive tissue waste in consequence of nitrogen loss after fever or inanition. It was found that the administration of tethelin led to a very remarkable acceleration of the regain in weight following upon admission to food compared with controls. Robertson believes the result must be attributed solely to the stimulation of tissue repair by tethelin.

The action of tethelin on tissue repair in the healing of wounds was also subjected to experimental tests. At the end of three days in control animals the wounds produced by a punch (similar to a ticket punch) were incompletely filled with red or yellowish granulation tissue; the area of the lesions was not contracted, and the edges were in several instances inflamed. In the *treated* animals all of the wounds were completely filled with granulation tissue, the area of the lesions had markedly contracted, and no swelling was observed at the edges of any of the wounds. Twenty animals of the same age were used in this experiment, and ten of these were given tethelin. At the end of six days in the control animals the cavities of the wounds were now completely filled with granulation tissue and the area of the lesions had begun to contract. In the treated animals, on the other hand, the granulation tissue had already and in every instance been replaced by white cicatricial tissue. At the end of ten days, the wounds in two of the control animals were still filled with granulation tissue, the granulation tissue having been replaced by scar tissue in the remainder.

THE ALKALOIDS OF OPIUM.

There are remarkable differences of opinion expressed regarding the comparative values of the various opium alkaloids as analgesics, and the conclusions drawn by various observers are only to a limited extent due to impurities in the substances experimented with. Macht, Herman, and Levy (*Journ. Pharm. and Exper. Therapeutics*, vol. viii. No. 1, p. 1) point out that most of the men were well-trained chemists and were careful to use pure drugs. The chief explanation for the disagreement in their results lies in the lack of a quantitative method of studying pain and in the notoriously unreliable data gathered from the subjective symptoms and opinions of patients. Authors had to content themselves with clinical studies, as pain is a subjective sensation precluding the possibility of direct experimentation on the lower animals. Macht, Herman, and Levy appear to have surmounted the difficulties in the method they describe for studying cutaneous pain sensation in man quantitatively and expressing the results in absolute physical units. It is not possible to enter upon a description of their methods here, as this cannot be briefly done. By their method it was found that after establishing the normal threshold of pain for any given spot, the administration of some opium alkaloids produced a fall and that of others a rise in the threshold of pain sensation, thus affording a quantitative method of studying analgesia; of course by this method only cutaneous analgesia could be studied, and visceral pains and pains from other deep-lying structures cannot be studied quantitatively by any method so far known. The subjects of the experiments were one of the writers and two medical students. The injections were given without the subject being aware which of the alkaloids was being administered, and control injections of normal saline solution or of distilled water were administered from time to time, and these produced no change in the pain threshold, although the subject might be under the impression that a narcotic drug was being used.

The drugs studied were morphin, narcotin, codein, papaverin, narcein, and thebain, the six principal opium alkaloids in the form of their salts. The purity of the drugs was well within the limits of error of physiological experimentation.

Morphin Sulphate.—Very small doses of the drug (5 mgrs.) produced no measurable anæsthesia. Slightly larger quantities, 10 mgrs. ($\frac{1}{6}$ gr.), which is generally regarded as a rather moderate therapeutic dose, produced quite marked lowering of the pain threshold in two of the subjects but not in the third. In their last subject the symptoms following the narcotic—nausea, sleepiness, inco-ordination—were very marked, yet the pain sensation was but little affected. In order to exclude any error in the experimentation the subject repeated the experiment with a somewhat larger dose, 12 mgrs. ($\frac{1}{5}$ gr.). Repeated observations were made for two and one half hours. Instead of producing analgesia the drug excited a definite hypersensibility to pain, reaching a maximum 1 hour and 30 minutes after the injection. The hyperexcitability could even be noticed on slamming a door or making a noise. At the same time all the other by-effects of morphin were present to a high degree; the subject was nauseated, exhibited inco-ordination of gait and speech, and was otherwise sick. This experiment substantiates strikingly the idiosyncrasy to morphin met with in some patients. We see occasionally persons in pain who fail to obtain relief from the drug and are rendered even more excitable by it. Constipation was not a marked feature in the experiments.

Codein phosphate was used in doses of 20 and 25 mgrs. The most important point noted was its very poor analgesic power, not only far inferior to morphin but also less effective than papaverin. No nausea or other untoward symptoms followed the administration of this drug. There was no constipation noted.

Papaverin.—This alkaloid has been little employed in practice until recently. Of the older observers Baxt emphasised its narcotic and analgesic properties, ranking it next to morphin. In the last few years Pal has been employing it extensively, and Macht has recently pointed out its remarkable influence on the heart and coronary circulation. In the experiments papaverin chloride, and sulphate were used in doses of 40 mgrs. The injections were slightly painful, but otherwise no untoward symptoms were felt. There was a slight feeling of flushing in the head and face due to vaso-dilatation produced by it, and there was a distinct fall in the blood-pressure in every case. Slight constipation was noted. The analgesic properties of the drug were certainly greater than those of codein, and were not inferior to those produced by 10 mgrs. of morphin, except that the dose of the drug was much larger and the onset of analgesia slower and its duration shorter.

Narcotin.—The narcotic properties of the alkaloid have been and are regarded as very weak. The chief interest about this drug is in connection with the important *role* attributed to it in certain combinations of opium alkaloids. Narcotin hydrochloride was used in the experiments. Narcotin is a weak base, and the salts are slightly acid. The injections therefore caused considerable pain. No other untoward symptoms were noted, except slight constipation. Doses from 8 to 40 mgrs. were employed. Small doses produced no analgesia but on the contrary slight hypersensitiveness. After large doses (20 to 40 mgrs.) a hypersensitive stage is first noted; this is followed half an hour later by a slight dulling of pain sensation.

Narcein and Thebain.—These two alkaloids are better known as convulsants, and thebain in its pharmacological action is closely allied to strychnine. They are generally regarded as devoid of analgesic or narcotic action. The hydrochlorides were given in doses of 10 mgrs. each. The injection of narcein was very painful, those of thebain much less so. Neither produced any analgesic effect; on the contrary, they produced some hypersensibility to pain.

In the order of their efficiency as analgesics the alkaloids of opium are therefore morphin, papaverin, codein, narcotin, narcein, thebain. Morphin produces the most disagreeable symptoms. Constipation seems to follow more constantly after papaverin and narcotin than after morphin and codein. Morphin was certainly the best hypnotic.

In respect to pain at the site of injection, narcein was the most painful, narcotin came next in order, and papaverin also caused slight tenderness. The other alkaloids produced little or no pain.

Action of some Combinations.—The difference in the pharmacological action of morphin or its salts and the galenical preparations of opium has in the last few years been attracting considerable attention. The explanation of this difference and, in general, the relative pharmacodynamic values of the opium alkaloids individually and in combination with each other has frequently been the subject of investigation.

Thus Straub calls attention to an interesting synergism between morphin and narcotin. He speaks of narcotin as a practically inert drug, and yet finds that when given in combination with morphin it intensifies the properties of the latter many times. This phenomenon he calls "potentiation." Similar combinations are also studied by Macht, Herman, and Levy. Injections of 20 mgrs. of a mixture of equimolecular weights of morphin and narcotin meconate introduced by Straub under the name "Narcophin" were made in each of the subjects. In this dose not more than one-third of its weight, or about 6 mgrs. of morphin meconate, produced the highest degree of analgesia observed in the whole research. It was much higher than that produced by 10 mgrs. of morphin alone. The effects of the dose were still felt on the following day. This dose produced considerable nausea, and from later investigations by Macht is perhaps the maximal dose of narcophin which it is advisable to use. Smaller doses of 10 mgrs., containing about 3 to 4 mgrs. of morphin by weight, were also found to produce marked anæsthesia, which in degree was little less than that produced by 10 mgrs. of morphin alone. It was found that even 5 mgrs. of narcophin, containing less than 2 mgrs. of morphin and a little more than 3 mgrs. of narcotin respectively, also produced analgesia.

These experiments substantiate conclusively and strikingly Straub's views on the synergism of morphin and narcotin. To confirm this interesting phenomenon further, and to prove that this peculiar synergism is not due to the meconic acid present in narcophin, one of the subjects repeated the experiment by taking a mixture of morphin sulphate (8 mgrs.) and narcotin hydrochloride (8 mgrs.). The results were in perfect agreement with the other observations. To make the proof more complete, other experiments were made in which the subjects were first injected with narcotin hydrochloride and its effects studied for about an hour and a half; a minute dose of morphin sulphate (3 mgrs.) was then administered, and even with such a small dose the synergism could be distinctly observed and measured. Again, this subject, who showed an idiosyncrasy for morphin and was rendered hypersensitive by it, showed no such idiosyncrasy after narcophin. The practical application of such an observation is quite obvious.

In regard to other symptoms following the administration of narcophin, except after the largest doses there was on the whole much less nausea produced than after an equivalent amount of morphin alone. Constipation followed the administration of narcophin much more frequently than that of morphin. There was but slight pain from the drug at the site of injection.

Pantopon (Sahli's combination of the total alkaloids of opium).—Ten mgrs. containing not more than half its weight of anhydrous morphin produced far more analgesia than 5 mgrs. of morphin alone. The nausea, on the contrary, was in each case less. There was no pain at the site of injection, and slight constipation was noted after the drug.

Such combinations as narcophin and pantopon exhibit a remarkable form of synergism, a result which cannot be explained as the arithmetical summation of effects of their component parts. The explanation of the phenomenon is not clear. It is known that in narcophin there is a combination of members belonging to two distinct chemical groups—pyridin-phenanthrene and benzyl-isoquinoline groups. Such a combination is apt to lead to potentiation rather than to a summation, as has been pointed out by Bürgi. That author, experimenting with various combinations of drugs, has advanced an hypothesis that the effect of combining drugs belonging to the same chemical series will result in an addition of their individual effects; combinations, on the other hand, of drugs belonging to different chemical series are prone to potentiate each other.

OPHTHALMOLOGY.

UNDER THE CHARGE OF

W. G. SYM, F.R.C.S., AND A. MACGILLIVRAY, M.D., D.Sc.

THE BLIND SPOT.

GRADLE (Chicago) writes an interesting paper (*Annals of Ophth.*, April 1915) on the blind spot from its discovery (or at least its description) by Mariotte in 1668 to the present day. It is naturally only in very recent years, since the importance of the field of vision was realised, and the more precise method of mapping out instituted, that the blind spot has come to have any vital meaning for us. Gradle gives a *résumé* of the facts known and the theories promulgated in connection with the occurrence of central and paracentral scotoma related to various "intoxications," and lays great stress on the importance of the central vein of Vossius as helping to explain the cause of disease passing from the accessory sinuses of the nose to the optic nerve. The infection, the œdema, or whatever may be the disturbing factor, passes from the sinus periosteum through the veins of the diplœ and the lymph channels to the periosteum of the orbit, and thence to the intra-canalicular portion of the dural sheath of the optic nerve ; or possibly through the periosteal veins or dural veins directly to the central vein of Vossius. This important vessel is fed by the venules from the posterior orbital portion of the nerve, from its sheaths, and also from the periosteum of the orbit, and lies exactly in the centre of a transverse section of the nerve. We may thus see several degrees of affection of the nerve : should the dura alone be involved the peri-papillary fibres will be affected and an enlargement of the blind spot will result, for these fibres lie at the periphery of the nerve ; but should the feeders of the central vein be infected, the fibres lying next to it will suffer, those, namely, which form the papillo-macular bundle, when a central scotoma will result. It thus becomes evident that in Gradle's view the transmission of the visual trouble is *via* the soft tissues rather than by way of the bony structure. A central scotoma or an increase in size of the normal blind spot has repeatedly been the symptom which has driven a patient with chronic ethmoidal or sphenoidal suppuration to seek advice, and it has even occurred that, this being the sole symptom, the patient has submitted to drastic treatment of the (sphenoidal) sinus, with consequent restoration of vision. A word upon the method employed by Gradle for the investigation of these fine changes in the field :—He rejects Bjerrun's method of the black velvet screen with the rod carrying the fine test object and the delineation of the scotoma by means of black pins, on the ground that he considers that the movement of the rod which carries the test object, even if it (the rod) be covered with the same black velvet as the screen, is apt to distract the patient's attention, and that the pins may be visible also. His own plan is to use as test object a blued steel ball of the necessary size ; this is controlled from behind the screen by an electro-magnet and is caused to roll over the anterior surface in obedience to the movements of the magnet at the back of the screen. The patient, further, is not allowed to speak, as that causes movements of the head, but signals to the investigator by pressing a little electric bell. Gradle is nothing if not thorough !

VISUAL SYMPTOMS DUE TO GUNSHOT INJURIES.

It is impossible to get away from the war; it pursues us even into the classic shades of ophthalmology. Pierre Marie writes (*Bulletin de l'Académie de Médecine*, November 1915) regarding the visual symptoms produced by lesions of the intracerebral visual fibres as the result of gunshot injuries of the head. It is well known that, at least until the introduction of defensive armour for the head, cranial injuries formed a high proportion of the wounds incurred in this war. As showing how frequent such injuries have been, and how highly differentiated the classification of lesions has become, it may be noted that the paper does not deal with injuries of the frontal neuron (tracts, chiasma, optic nerve) but solely with the occipital neuron—practically the visual cortical area and the optic radiations. There is of course hardly any point on the cranium a lesion of which may not produce vision symptoms, provided the damage passes deeply enough into the cerebral tissue; for example, a temporo-parietal lesion may "catch" the optic radiations, but the occipital region is the part injury to which is most sure to entail loss of vision to some extent or other. The bundle of vision fibres, as is well known, forms a band of white substance which, skirting the outer wall of the ventricle, spreads out to the occipital lobe to terminate at the calcarine fissure, whose upper and lower lips constitute the cortical visual area. Homonymous hemianopsia has been caused by a complete division of these fibres on one side or destruction of the cortical area on one side; and according as the lesion may be less complete there may be quadrant hemianopsia, hemianopsia inferior, etc. A notable feature of these cases sometimes is that the visual lesion may remain unsuspected by patient and by surgeon alike until symptoms are sought for with the aid of the perimeter. A very marked element in such cases is the perfect symmetry in the visual fields of the two eyes. Let it be noted also, for it is a point too little understood outside the circles of ophthalmology proper, that the fundus of the eye presents no evidence whatever of any change.

Marie classifies the cases falling into this category which he has met with in course of the present war under several headings:—

1. *Cortical Blindness.*—This involves a serious lesion of the visual area in the occipital lobe, one which is necessarily bilateral. In certain of these cases vision began to return after some weeks of complete blindness, during which the patient retained only a faint impression of "lightness."

2. *Inferior Hemianopsia.*—A few instances of this have been observed; the patient, who at first suffered from complete cortical blindness, began after a time to perceive objects above the horizontal line, but the lower "half" of the field of vision continued absent. The line of demarcation was not strictly in the horizontal meridian, and the

macula was sometimes spared, sometimes lost. The causative wound lay in the middle line above the external occipital protuberance.

2. *Typical Homonymous Hemianopsia.*—This was almost invariably produced by a wound in the temporo-parietal region accompanied by deep-seated and extensive destruction of the cerebral substance or by the continued presence of a foreign body (projectile). Very rarely was it produced by a cortical lesion lying far back.

4. *Hemiachromatopsia.*—This was observed in one instance alone.

5. *Quadrantic Hemianopsia.*—In this variety the lost portion of the field lay in the same-named region of each visual field. Five cases were caused by lesions affecting the optic radiations: two of the cases were fairly exact, but in the other three the invasion of the neighbouring quadrants was very apparent. It seemed that the inferior portion of the field must correspond to the superior lip of the calcarine fissure, or, to put it in another way, the upper portion of the retina is represented in the superior lip of the fissure.

6. *Hemianopic Scotomata.*—About twelve cases had been encountered, the scotoma in each case being negative; *i.e.*, the patient was unaware of any gap in the field, he projected no cloud or dimness in the affected area. The scotoma was usually absolute, but its relation to the macula was very variable; the most usual variety was that affecting the central and paracentral area, but there were instances also of truly central and of peripheral scotoma. It should be noted that in all the cases the scotoma were homonymous and constant in their form: they were certainly not due to any lesion of retina or of optic nerve but to damage to the more central nerve paths.

A question which has agitated the minds of ophthalmic surgeons who have charge of wounded soldiers is the propriety (or not) of operating when traumatic cataract of one eye is present. Valude and Morax, both of Paris, express divergent views on the point. At the outset it should be remembered that the question is not confined to war injuries; every surgeon has the matter presented to him in civil life. A. B. has a traumatic cataract of one eye; it is "ripe"; shall I operate or shall I not? For the benefit of those who have not to deal daily with cases such as this it may be well to clear the ground by stating the following important facts: (1) Cataract deprives a person of sight of objects, but not of perception of light; whether he can distinguish the movement of an object depends on a variety of attendant circumstances; (2) removal of the cataract is attended by a certain slight degree of risk to each eye; (3) an eye from which the cataractous lens has been removed may be expected to see moving objects readily, and perhaps to count fingers and to recognise large objects at a few feet distant, while with a suitable lens, replacing the lost crystalline, it should be able to see (on an average) more than half as well as a normal eye, and to make out print of moderate size.

The problem, then, is: A soldier receives an injury to one eye, resulting in the formation of cataract; am I wise to operate? Valude replies in the negative, chiefly on the ground that whether the man has a cataract or has had it removed he is, with reference to seeing with and without a lens, useless as a soldier. If operation were to take place it *might* be followed by sepsis or even by sympathetic ophthalmia (of this Valude has seen one case at least during the war), and the last state of that man would then be worse than the first. It is the case then that the State derives no benefit whether the operation be performed or not, that the wounded soldier is entitled to a pension whether or not, and that there is quite a possibility that operation may even enhance the burden cast upon the State; on these grounds Valude regards operation as unsuitable. It will be understood that he refers solely to quiescent cases and not to those in which there is increased tension or a foreign body present, or any complication demanding, from a *surgical* point of view, immediate active treatment.

Morax, writing later, challenges these views. One's duty, he says, is to repair the damage as far as possible. As to the man's value as a soldier he points out that supposing the injured eye be the left one he is quite an efficient shot with the right eye and may be quite useful as a soldier again. In this respect the requirements of officers and of men may be a little different, but it is certain that a number have "carried on" in this war even after complete loss of one eye; *à fortiori* they may do so when the eye is only partially lost. An eye in any case which has been operated upon and obtained good sight with a glass is a better asset than one which still has cataract and is both useless and ugly, and with great cogency he urges a further point: assuming that in some unfortunate case operation may result in loss of the eye and even of the other eye, that is a fair burden of which the State must assume the risk, since it may happen even in the hands of the most skilful surgeon, and we have no right to deprive the man of the benefit which can be obtained lest he should become a more serious burden on the State. It would be unjust—to put the matter squarely—to have the amount of the man's pension settled and *then* to expose him to such risks as are involved in operating when the malady requiring treatment was incurred in the service of the State.

W. G. S.

NEW BOOKS.

Cancer of the Stomach. By Dr. FRANK SMITHIES, M.D., Gastro-enterologist to Augustana Hospital, Chicago. With a Chapter on the Surgical Treatment by ALBERT J. OCHSNER, M.D., F.R.C.S., Professor of Clinical Surgery, University of Illinois. Pp. 525. Illustrated. Philadelphia and London. W. B. Saunders Co. 1916. Price 24s. net.

DR. FRANK SMITHIES has written enough on his subject to prove his right to the title of "gastro-enterologist" which he now assumes. His contributions have been known to us for some years, especially since 1912 and after, when he produced in that useful annual volume *The Collected Papers of the Staff of St. Mary's Hospital, the Mayo Clinic,* many valuable papers on gastric functions and disorders.

In assembling those papers and others and bringing them thoroughly up to date in this handsome volume he has done a real service to the profession.

The book is a careful study of 921 operatively and pathologically demonstrated instances of gastric cancer.

The first chapter, on the general distribution and etiology, is mainly statistical, with tables and charts from the international cancer statistics from hospital returns and from the compilations of Dr. Frederick Hoffman, statistician of the Prudential Life Insurance Co.

These statistics return the significant information that "the cancer death-rate in the civilised portions of the earth" (he includes Germany) has increased 23·3 per cent. in the past decade.

The increase in gastric cancer at the age of 40 and above has been more than 10 per cent. for both sexes.

The chapter on the morbid anatomy is well illustrated by forty-six photographs and photo-micrographs from the ample material of the Mayo Clinic. It shows clearly that "the early diagnosis of gastric cancer is a microscopic one and is possible from histological study of freshly removed tissue." Rapid methods of cutting and staining such sections of tissue are given.

The chapter on symptomatology is an important one and very instructive. He groups his material under the following symptom-complex heads:—

I. Gastric cancer in individuals who came to laparotomy for clinically benign gastric ulcer, and in whom cancer was diagnosed microscopically.

II. Gastric cancer clinically developing in patients with years of antecedent dyspepsia of the "peptic ulcer type" in whom malignancy subsequently appeared.

III. Gastric cancer in individuals who prior to the onset of malignant disease had enjoyed perfect gastric health.

IV. Gastric cancer in individuals in whom malignancy followed periods of gastric disturbance of no clinical type.

V. Gastric cancer in individuals who presented few clinical evidences of a malignant process primary in stomach.

VI. Gastric cancer secondary to an extra gastric malignant process.

Many clinical cases carefully recorded and complete in details Illustrate those various groups, and much can be learned from a study of them.

The chapters that follow on physical examination—the examination of gastro-intestinal functions and of the blood—give the most recent methods.

We regret to find no original observations recorded on digestion leucocytosis; with all the material at the author's command he might have brought to a decision the discussion on this question.

He gives a series of 25 radiograms along with the other clinical and surgical findings, and concludes that in the majority of cases clinical diagnosis was quite possible without the added X-ray examination, and that in clincally doubtful cases the X-ray diagnosis was similarly dubious.

The inclusion in this volume of a chapter on "the surgical treatment" by so eminent an authority as Ochsner of Chicago is significant, for after all the advances claimed in our clinical knowledge of gastric cancer the surgeon has often to make the diagnosis.

The chapter on non-surgical treatment says all that can be said.

If this book is read as it should be by practitioners we would see fewer of those cases on the medical side of our hospitals when the diagnosis has become so easy and the prognosis so hopeless.

Bone-Graft Surgery. By FRED. H. ALBEE, M.D., Professor of Orthopedic Surgery, New York Post Graduate Medical School. Pp. viii. +450. With 332 Illustrations. Philadelphia and London: W. B. Saunders Co. 1915. Price 25s. net.

IN this volume the author describes the results of extensive experimental and clinical researches in bone-grafting which have not yet found their way into surgical text-books, thus giving it a strong claim to attention and consideration.

The introductory chapter deals with the fundamental principles underlying the use of the bone-graft in surgery. Professor Albee is convinced that the best transplant is a live piece of autogenous bone, including all its elements, namely, periosteum, compact bone, endosteum, and marrow substance. He also considers it advantageous to have corresponding structures of graft and host bone in contact; that is, periosteum to periosteum, compact bone to compact bone, endosteum to endosteum, and marrow to marrow.

The remaining and more important portion of the book, which is excellently and abundantly illustrated, is devoted to an exposition of the author's original applied technique, and specific indications for bone-grafting.

The operation as performed in cases of Pott's disease appears to be simple and attended with practically no risks. It consists in the implanation of one continuous strip of bone (removed preferably from the tibia) sufficiently long to span the diseased vertebræ and include one or two healthy vertebræ above or below those involved in the tuberculous infection. This tibial bone-graft is implanted in a gutter previously made by splitting the spinous processes to receive this long graft of bone between their split halves.

The technique does not invite further criticism than that undue importance is attached to the need for employing motor-driven tools.

The following tabulation indicates the wide field of usefulness of the bone-graft:—(1) To immobilise and stimulate osteogenesis in certain tuberculous joints; (2) to repair traumatic bone injuries; (3) to replace bone destroyed by infection; (4) to supply bone congenitally absent; (5) to strengthen or replace bone weakened or destroyed by benign or malignant growths; (6) to correct congenital or acquired deformities of the face; (7) to establish joints congenitally absent and restore those destroyed by disease; (8) to fix in place certain dislocated joints (acquired or congenital); (9) to close bone foramina in neuralgias; (10) to correct congenital or acquired deformities of extremities or trunk.

The bone-graft would appear to be specially valuable in replacing defects in bone, in the treatment of fractures complicated by delayed union, and in bringing about the fixation of the spine in tuberculosis. The cure of tuberculous joints by the production of ankylosis is well known. Any safe rational operation or procedure which will hasten this is worthy of trial in selected cases; for example, where recumbency and good mechanical treatment have failed or are for certain reasons not carried out. In this connection it is worthy of note that the ambulatory treatment of Pott's disease is the method of choice among American surgeons. They admit that the results of this treatment, especially in the acute stages of the disease, have not, as a whole, been satisfactory. If thorough treatment by recumbency were adopted at the outset (as is so successfully pursued by British and French surgeons) it is possible that the necessity of securing a strong bony ankylosis in spinal tuberculosis by operative measures would be less evident.

The book is excellently arranged, lucidly written, and full of practical details that make it invaluable for surgeons who have to deal with orthopædic cases. It may be most warmly recommended to their attention.

Surgery in War. By Major A. J. HULL. Preface by Sir ALFRED KEOGH, K.C.B., M.D. Pp. xv. + 390. With 79 Illustrations. London: J. & A. Churchill. 1916. Price 10s. 6d. net.

A WORK such as this, dealing exclusively with surgery as applied to gunshot injuries, must at the present time be of interest to all surgeons. Sir Alfred Keogh in his prefatory remarks says that the reader "will find in almost every chapter matter which is new and suggestive." So true is this that it may be confidently anticipated that this work will be found of very great value to all surgeons and R.A.M.C. officers. It includes and expands the teaching of the "Memorandum of Treatment."

Major Hull in the author's preface says it is "not intended to be in any sense complete." A chapter on the treatment of gunshot wounds of the face and fractures of the inferior maxilla would have been a valuable addition, but Major Hull is to be congratulated on putting into print such valuable material while there is still opportunity for making use of it. One of the strongest impressions left after a consideration of this work is that if these observers be correct we are on the verge of entering upon a new era in the history of the treatment of wounds, when it will be accepted that after an initial cleansing with disinfectants the natural protection of the human body, focussed and concentrated by the action of hypertonic solutions, will prove the most effective means of securing the healing of a once infected wound. It is claimed that a salt pack—sodium chloride contained in a double gauze bag—will call to a part all the anti-bodies requisite, and osmosis will cause such a flow of serum that no further mechanical cleansing or irrigation will be necessary; the superficial absorbent dressing alone will require changing, the salt pack being left in position for some days, thus obviating the necessity of the painful repacking of deep wounds during the transport of patients. We cannot, however, accept this dictum unreservedly. The desirability of excising the infected and damaged tissues in the track of a foreign body, either as a simple procedure or as a preliminary to extending the field of operation, is repeatedly referred to. There are few printer's errors. Discretion has been shown in the selection of simple and effective illustrations. The radiograms have been well taken and successfully reproduced. Under the heading "X-ray localisation of foreign bodies" methods are described that have been found useful, but no mention is made of the very easy method described by Mr.

Thomas Rankine which has been so widely adopted with such constant satisfaction.

Text-Book of Nervous Diseases. By ROBERT BING, University of Basel. Translated by CHARLES L. ALLAN, Los Angelos. Pp. 481. With 111 Illustrations. London: William Heinemann (N.D.). Price 21s. net.

THIS book for students and practising physicians is presented in the form of thirty lectures, the author believing that a text-book written in lecture form is much more easily read, understood, and remembered than one more systematised. The author points out that in the arrangement of his subject-matter he has subordinated the customary topographical and pathologico-anatomical classification almost entirely to the etiological and pathologico-physiological. Each lecture contains a great deal of information: some are easily read and understood, but most of them are certainly too complicated and difficult for the general physician and student—those who are doing ordinary general work and who are not specially devoting their time to a study of nervous diseases—to understand.

This text-book would seem to be more useful for the nerve specialist.

An Introduction to Neurology. By C. JUDSON HERRICK, Professor of Neurology in the University of Chicago. Pp. 355. With 137 Illustrations. Philadelphia and London: W. B. Saunders Co. 1916. Price 7s. 6d. net.

PROFESSOR HERRICK is already well known on account of his numerous contributions to comparative neurology, and the incorporation of much of this work in a separate volume will be welcomed by all neurologists. He has prepared this book to try to help the student to learn to organise his knowledge in definite functional patterns earlier than is often the case, and to appreciate the significance of the nervous system as a working mechanism from the beginning of his study.

The subject-matter, which deals almost exclusively with the anatomy and physiology of the nervous system, is arranged into three groups. The first part, which comprises seven chapters, discusses the more general neurological topics. The second part, consisting of eleven chapters, is concerned with the form of the nervous system and the functional significance of its chief subdivisions in general, followed by a review of the architectural relations of the more important functional systems; while the last three chapters are devoted to the cerebral cortex and its functions. Each chapter is fully illustrated, and concludes with a summary describing briefly the chief points presented. Extensive references to the literature are given with every chapter.

A large amount of information is collected here, especially valuable for those interested in comparative neurology. We note the tendency of the author to accept the statement that "the neuron of the adult animal body is an anatomical unit; it corresponds morphologically to one cell. The neuron is, accordingly, also a genetic unit, for it is differentiated from a single embryonic cell." As a book it requires careful and prolonged study, and should prove of much use as a work of reference. There is a good index.

NEW EDITIONS.

Cleft Palate and Hare-Lip. By Sir W. ARBUTHNOT LANE. Third Edition. Pp. 102. With 58 Illustrations. London: Adlard & Son. 1916. Price 10s. net.

THIS book, well printed and well turned out, is divided into three chapters. In the first chapter Sir W. Arbuthnot Lane supplies his contribution, which is supplemented in the second chapter by an article on speech training by Cortlandt MacMahon, B.A., and the book is concluded in a third chapter by an article on "Dental Treatment of Cleft Palate," by W. Warwick James, F.R.C.S., L.D.S.

The first chapter occupies sixty pages. It is in no way a dissertation on cleft palate nor a general description of its treatment: it is an advocacy for the adoption of the flap method urged by Sir Arbuthnot Lane and accepted by many operators, including the reviewer, as being the most suitable operative method for the treatment of most cases of the deformity. In Sir Arbuthnot Lane's opinion doubtless there is no other efficient method of treatment, but comparatively recent discussions and writings on the subject have disclosed that that opinion is by no means unanimously held. Sir Arbuthnot Lane's contribution in this book is a special pleading, not, unfortunately, a judicial pronouncement from one whose experience in this operation is unrivalled, at least, in Britain. The chapter opens with a consideration of the local and general change following imperfect development of the nasopharynx and jaws; it passes to describe the manipulations necessary for the conduct of the flap operation, and the clearness of expression is much assisted by the excellent diagrams of how the variously shaped clefts can be closed. The instruments Sir Arbuthnot Lane uses are described, and for the most part illustrated. They are not many, but it is common knowledge that the number of instruments decreases as manipulative dexterity increases, and many successful operators use no special instrument at all. Fuller statistics, and these spread over a longer period, would have made this acceptable contribution to the literature of the operative treatment of cleft palate and hare-lip more valuable.

Mr. MacMahon, after a brief mention of the chief abnormalities of speech after operation, and a description of the principles of treatment, concludes with some general remarks reviewing his part of the subject. Though he advises that instruction in articulation be commenced in the second year, he does not recommend "expert training" until between the fifth and sixth years of life, for then only can the child intelligently assist in carrying out instruction. Mr. MacMahon bears witness to the good palatal surface presented to the tongue after cases operated on as Sir Arbuthnot Lane recommends.

Mr. James' chapter is most acceptable. It is well written and well illustrated. It reviews the defects commonly found, and shows that there is no case treated early but will improve. It brings a consciousness that the rectification of dental defects are but too often overlooked by the surgeon, and the advice of his colleague, the dentist, too seldom asked.

A System of Medicine. Edited by Sir WILLIAM OSLER, Bart., M.D., assisted by THOMAS M'CRAE, M.D., F.R.C.P. Second Edition. Five Volumes. London: Henry Frowde and Hodder & Stoughton. 1915. Price 35s. net per volume; £7 15s. net per set. (*Second Notice.*)

THE third volume of this *System of Medicine* deals with diseases of the digestive system and of the urinary system. The first article is a general discussion of the pathology of digestion, from a clinical standpoint, by Dr. Stockton, and it is followed by a chapter on the diseases of the mouth and salivary glands by Dr. Riesman. While recognising the importance of oral sepsis, Dr. Riesman does not fall into the error of ascribing to it a large place in the production of disease. The account of the different varieties of stomatitis is illustrated by a number of colour plates, showing the characteristic appearances. The affections of the tongue and salivary glands here described form an interesting series of rather rare and sometimes puzzling maladies. They are clearly depicted, and, so far as we noticed, nothing of importance has been omitted. Dr. M'Crae writes on diseases of the œsophagus. Considerable stress is rightly laid on diverticulum, which, though rare, is occasionally met with in practice, and is exceedingly difficult in most cases both to diagnose and treat. Dr. Friedenwald follows Boas' grouping of functional gastric disorders very closely. Probably the most useful papers in his chapter are those on hyperchlorhydria and nervous dyspepsia. He urges that in the latter drugs and diet play a less important part in the successful treatment than general hygiene—a view with which most will agree. The chapter on organic diseases of the stomach is by Dr. Martin, and is an adequate presentation of the subject. Perhaps less notice is taken of the surgical treatment of gastric and duodenal ulcer than might have been expected. The whole question of duodenal ulceration indeed might have been more fully discussed. On the other hand, there is a very complete description of gastric cancer, in which stress is laid on the newer tests for the disease; there is also a reference to Alexis Thomson's work on fibromatosis of the stomach in this relation. Dr. Stengel is responsible for diseases of the intestines. We notice that he refers to the medical treatment of intussusception, whereas in the light of the favourable results of early operation it would seem that the condition ought to be relegated to the surgeon as soon as the diagnosis is made. As against this, however, it is gratifying to see that he takes up a conservative position as to surgical treatment in chronic constipation, and relies on remedies which though old-fashioned have stood the test of time. The chapter on diseases of the liver and gall-bladder, by the late Dr. A. O. T. Kelly, has been revised by Dr. Pepper. There is here a most interesting and complete account of the rare condition known as polyserositis, a subject on which Dr. Kelly was an authority. It is a disease which deserves to be better known, for a correct diagnosis, though difficult, is not impossible. Diseases of the pancreas are dealt with by Dr. Opie, whose name is so well known in connection with his work on pancreatic lesions in diabetes. It is of interest to note how little significance is now attached to the pancreatic reaction of Cammidge, about which so much was written not very many years ago. There is an excellent account, illustrated by diagrams, of cysts of the pancreas. The chapter on diseases of the peritoneum is contributed by Dr. H. D. Rolleston. Its value is enhanced by the abundant bibliographical references. The last chapter in this section is on visceroptosis, by Dr. Thomas R. Brown. While on the whole the advances on our knowledge of diseases of the digestive organs has been less conspicuous than in other departments of medicine, and in consequence this part of the system shows fewer changes than some of the others, the whole forms a thoroughly up-to-date account of these disorders, and so far as we have noticed there is nothing of importance in the way of recent work that has not been taken into account in the revision.

The second part of Vol. III. opens with a general introduction to diseases of the kidney by Dr. M'Crae, which, like all the articles by this author, is of first-rate merit. It would be difficult to find a better or clearer account of the obscure questions raised in the classification of the different forms of nephritis than that which he gives, and although he opens by saying "Let us be thoroughly theoretical for a moment," he compresses a great deal of practically useful information into the next few pages. Incidentally he refers to some very illuminating observations by Brödel, of Johns Hopkins Hospital, from which it appears that there are in two human kidneys approximately 4,000,000 tubules and glomeruli, aggregating about 75 miles in length; on this calculation a tubule secretes between 2 and 3 drachms of urine in a lifetime of 70 years. Allowing for the greatest latitude in such a calculation, it is apparent that such facts should make one extremely chary in forming any opinion as to the extent of the disease from the number of casts present. Following on this introduction there come chapters on the anomalies of urinary excretion and on uræmia by Dr. A. E. Garrod. It is hardly necessary to say that these are masterly and authoritative accounts of the subjects with which they deal. Nephritis has been entrusted to Dr. James B. Herrick. The usual classification—acute, chronic parenchymatous, and chronic interstitial—is adopted as regards the clinical part; the pathological grouping is practically that of Senator—chronic parenchymatous; chronic interstitial, primary, secondary, arteriosclerotic; and mixed, diffuse nephritis. This important section of the book leaves nothing to be desired. Probably no class of diseases is more troublesome to deal with in practice than the bacterial infections of the urinary tract, and although modern methods permit of a much more accurate diagnosis of the source of pus in the urine than formerly, it cannot be said that our means of treatment has correspondingly improved. Dr. Thomas R. Brown goes very thoroughly into the bacteriology and diagnosis of these infections, and strongly urges the importance of ureteral catheterisation, which he regards as having quite superseded the separator. The treatment advised is on the ordinary lines; the author has a low opinion of vaccines in this class of case, and has found them disappointing. The clinical side of this article is not so strong as the bacteriological. The acute pyelitis of childhood deserved special reference, but it is only mentioned incidentally. The article on tuberculosis of the kidney by the same author is in all respects a good one. This section of the system concludes by chapters on stone, tumour, and certain genito-urinary affections by Dr. H. Y. Young; all seem to us excellent.

In Vol. IV. circulatory, blood, glandular, vaso-motor, and trophic diseases are treated. As is almost inevitable in a system written by many authors there is a good deal of overlapping in the chapters on cardiac disease, but it is no disadvantage to the reader to have some of those subjects presented from different points of view. The volume opens with an introductory chapter on general considerations on cardio-vascular disease by Dr. Hoover, and a chapter on pericarditis by Dr. M'Phedran. Then follows a new chapter by Dr. Lewis, on the rate and mechanism of the heart-beat, which gives a succinct account of modern methods of diagnosis and research. It seems a pity that more space was not given to the polygraph, which, although it has been superseded by the electro-cardiograph for hospital work, still remains the only instrument which can ever be generally available for clinical work. Dr. Babcock's chapter on myocarditis is excellent, and is followed by one on endocarditis by Osler. Along with a frank admission of our impotence when once endocarditis has declared itself, there goes an important suggestion as to prophylaxis—viz. that when a child suffers from recurring attacks of tonsillitis the tonsils should be thoroughly removed. It seems to the reviewer that this piece of advice is one of the most important in the whole section on cardiac disease, because there is now no reasonable doubt that the rheumatic infection (which is, after all, one which produces a great deal of permanent crippling in youth) in very many cases enters by the tonsils. There are few but can look back with regret at cases in which recurrent tonsillitis has been neglected and in which, perhaps only after some years, an attack of tonsillitis, treated as one of the "usual sore throats," has been followed by rheumatism and endocarditis, with permanent valvular heart disease as a sequel.

Dr. A. G. Gibson writes the chapters on hypertrophy and dilatation and insufficiency of the heart, and jointly with Sir William Osler, that on valvular disease. Speaking of the Nauheim treatment, Sir William Osler states that cases fall into three groups: first, those who have nothing wrong, and benefit by the holiday; second, a large group who do badly—many of these are neurotic, some have valvular disease, aneurism, or arteriosclerosis; third, the cases that benefit—fat people with weak hearts, slight decompensated valvular defects. Plentiful lack of judgment has characterised the treatment of many cases, and practitioners of the Nauheim treatment are told that at least they ought to stop alarming people who have very little the matter with them. Sir William Osler's dicta ought to prevent the random use of Nauheim baths, and the too prevalent unscrupulous exploitation of this system of treatment. The discussion of the indications for and uses of digitalis is well worth reading. In Dr. Hoover's chapter on functional heart disease one naturally turns with interest to the pages dealing with "soldier's heart," of which so many cases are now being seen. So far as the clinical description goes our present experience exactly agrees with that of the American Civil War. It is noteworthy that then excessive smoking was regarded as partly responsible, and one cannot escape the impression that in our own cases the too generous dispatch of cigarettes to the front may have done harm to some men. Obviously, however, there must be great individual difference to the response to such toxins as well as to strain. The symptoms of pain and tachycardia are now, as then, the prominent features, and prolonged rest is the only thing which seems to do much good. Dr. Maude Abbott's article on congenital heart disease is a very complete monograph on the subject, and will, we are convinced, remain a standard source of information and reference for many years to come. Of the remaining chapters in this section of the book, aneurism and diseases of the arteries are contributed by Sir William Osler, thrombosis and embolism by Dr. Blumer, and disease of the lymphatics by Dr. Warthin. We must leave for future notice the remaining volume and a half of this admirable system.

Encyclopædia Medica. Edited by J. W. Ballantyne, M.D. Second Edition. Vol. III. "Chloroform" to "Dyspnœa." Pp. viii. + 672. Edinburgh: W. Green & Son, Ltd. 1916. Price 20s. net.

Notwithstanding the war, the volumes of the new edition of the *Encyclopædia* appear in timeous sequence. It says much for the editor's powers of persuasion, and not a little for his detachment of mind, that he has succeeded in keeping his team of contributors in hand, so that the *Encyclopædia* shows no signs of having been born in a time of stress. Of the forty-six main articles indexed only three are entirely new; the rest have undergone a revision, usually by the original author, which, so far as we can judge, has been thorough in all cases, and in a few amounts to a practical renewal of the article. We note that three of the contributors to the corresponding volume of the old *Encyclopædia* have died—Lockhart Gillespie, Allingham, and Radcliffe-Crocker. Their papers have been revised by Dr. Felkin, Professor Alexis Thomson, and Mr. Pernet, respectively. Of the new articles "Cleido-cranial Dysostosis," by the editor, which is written rather from the pathological than the clinical standpoint, claims first notice. It gives a full account of the rare and interesting anomaly, of which as yet we do not know the cause. One regrets that this article is not illustrated, as the condition is a striking one, and lends itself to portraiture in a way that impresses the memory. The late Dr. M'Allum's article on chloroform will, we are sure, command attention, written as it was by one who was really an expert in this particular anæsthetic. The danger signals in chloroform anæsthesia are very well explained, and the whole article is of great merit. Dr. Drummond's paper on "Legislation for Mental Defectives" is lucidly written. He criticises the indefiniteness of the statutory definitions of idiocy, imbecility, and mental defect, and points out the superiority from certain points of view of Binet's classification into idiots who cannot talk, imbeciles who cannot write, and mental defectives who are retarded by three years. Among the revised articles attention may be drawn to that on dressings, by Dr. Alexander, which is much more extensive than would have been thought necessary in July 1914. The wounds of war have re-opened a closed chapter of surgery, and it interests those of us who are neither surgeons, nor yet quite young, to see how the style of dressing in vogue a quarter of a century ago and more is coming into use again. How admirably, one thinks, would the old staff nurses in the Infirmary—the "hopelessly septic" who could never be taught to be good theatre sisters—have dealt with these sloughing, pus-discharging, granulating wounds and sinuses. The surgeon first learned his craft in war; he developed his art and then his science in peace. The secular art of warfare drags in its train now, as in the past, gangrene, secondary hæmorrhage, laudable pus, circular amputations, chloride of lime, healing by the second intention, moist dressings, big drains, free incisions—things that every hospital dresser in the '70's knew more about from practical experience than most hospital surgeons two years ago. *Naturam expellas furcá* seems as true in this sphere as in any other. Medicine, which in peace had so few conquests compared with surgery, has come into her own in war, though a Martian might question whether, by rendering warfare on the present scale possible, she has not taken back from mankind more with one hand than she gives it with the other.

BOOKS RECEIVED.

BOSANQUET, W. C., and J. W. H. EYRE. Serums, Vaccines, and Toxins in Treatment and Diagnosis. Third Edition	*(Cassell & Co. Ltd.)*	9s.
DAVIDSON, Sir J. M. Localization by X-Rays and Stereoscopy	*(H. K. Lewis & Co. Ltd.)*	7s. 6d.
FALTA, W., and M. K. MEYERS. The Ductless Glandular Diseases. Second Edition	*(P. Blakiston's Son & Co.)*	7 dols.
HOLLANDER, B. Abnormal Children	*(K. Paul, Trench, Trubner & Co. Ltd.)*	3s. 6d.
HOLLANDER, B. Nervous Disorders of Men	*(K. Paul, Trench, Trubner & Co. Ltd.)*	3s. 6d.
HOLLANDER, B. Nervous Disorders of Women	*(K. Paul, Trench, Trubner & Co. Ltd.)*	3s. 6d.
KELYNACK, T. N. The Drink Problem of To-day	*(Methuen & Co. Ltd.)*	7s. 6d.
KERR, J. M. MUNRO. Operative Midwifery. Third Edition	*(Baillière, Tindall & Cox)*	25s.
KETTLE, E. H. The Pathology of Tumours	*(H. K. Lewis)*	10s. 6d.
PITT, St. G. L. F. The Purpose of Education	*(Cambridge University Press)*	2s. 6d.
SHUTTLEWORTH, G. E., and W. A. POTTS. Mentally Deficient Children. Fourth Edition	*(H. K. Lewis & Co. Ltd.)*	7s. 6d.
SMITH, J. S. K. The Cure of Obesity and Obese Heart	*(J. & A. Churchill)*	3s. 6d.
STEVENSON, T. Incompatibility in Prescriptions, and How to Avoid It.	*(The "Prescriber" Offices)*	1s.
STUDIES in Surgical Pathological Physiology from the Laboratory of Surgical Research, New York University. Vol. I. 1915		—
THE Institutional Care of the Insane in the United States and Canada. Vol. I. By Various Authors. Edited by H. M. Hurd	*(The Johns Hopkins Press)*	—
THE Medical Annual. 1916	*(J. Wright & Sons, Ltd.)*	10s.
THE Medical Who's Who. 1916	*(Fulton-Manders Publishing Co.)*	10s. 6d.
TRANSACTIONS of the American Gynecological Society. Vol. XL.	*(W. L. Dornan)*	—

FORTHCOMING PUBLICATIONS.

The following New Edition is announced:—

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PRINTED BY GREEN AND SON, EDINBURGH.

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EDINBURGH MEDICAL JOURNAL

ΕΝ ΤΩ ΔΕΣΜΩ Η ΙΣΧΥΣ

EDITED BY
ALEXANDER MILES & J. S. FOWLER

Founded 1805. **JANUARY 1916.** New Series, Vol. XVI. No. 1.

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